

MINISTRY OF PUBLIC WORKS AND TRANSPORT
LAO PEOPLE'S DEMOCRATIC REPUBLIC

JAPAN INTERNATIONAL
COOPERATION AGENCY

THE STUDY
OF
MASTER PLAN
ON COMPREHENSIVE URBAN TRANSPORT
IN VIENTIANE
IN LAO PDR

FINAL REPORT
APPENDIX

SEPTEMBER 2008

KATAHIRA & ENGINEERS INTERNATIONAL

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APPENDIX 2

PROFILE OF THE STUDY AREA

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Present Use Zoning

The Vientiane Urban Development and Administration Authority (VUDAA) has prepared a land use regulation zoning map, of which target year is 2010. In this map, the use zoning is divided into 17 categories. These categories reflect the present land use. The categories of urban land controlled are classified into the following 14 use zones:

1. Old Urban Heritage Conservation Zone (ZPP-Ua)

This zone includes ancient temples, old buildings and offices such as: traditional house, mixed house, colonial house, row-house and communal house, of which value is architectural heritage. The condition of infrastructure is adequate.

To this zone a strict regulation must be applied, aiming to conserve old town including: cultural historical heritage, urban architecture and natural view. This zone must be complemented with guideline of heritage conservation plan.

2. Historical Heritage Conservation Zone (ZPP-Ub)

This zone covers That Luang great stupa and its compound, National Assembly, Memorial for Military who died in war, and children garden. It also includes ancient temples, old building such as: traditional house, modern house, and row-house. The condition of infrastructure is adequate.

To this zone a strict regulation must be applied. This zone must be complemented with specific heritage conservation regulation.

3. Administrative and Commercial Center Zone (UAa)

This zone covers government office, commercial and service center, and high density residential area. The infrastructure condition is good.

4. New Center Zone (UAb)

This zone is an expansion area which trends to increase of density. Infrastructure is under improvement to meet the future need of development. This zone is growing in economic and commercial activities. Ground level is rather high leading to less chance of flooding.

5. Peri-Urban Center Zone (UB)

These zones are located around the Urban Center. They are classified into two sub-zones, UBa for areas under airplane flying route and UBb for other areas. UBa must follow specific regulation of the organization concerned. UBb is of medium density and moderate quality infrastructure. Some area is low land and affected by flooding, thus population density in this area is between 50 and 80 persons/ha.

6. Mekong River Bank Zone (UC)

This zone is located along the Mekong River Bank, including levee and road network. For the development in this zone, inappropriate construction work must be controlled.

7. Peri-Urban Zone (UD)

This zone is divided into three sub-zones, UDa for areas under airplane flying route, UDb for agriculture activities, and UDC for urban growth. UDa is located in the west of the City, relating to the agriculture and is in the airplane flying route, therefore it needs to have a detail plan and follow to the specific regulation of air transport. UDb extends mainly to the north of the City and some parts to the south and to the west. It is a zone related to the agriculture and it can increase to the medium density. UDC is located in the south of the City, near to the Industrial Zone (I). In this zone big activities can be developed such as the new urban center, hospital, school, market and utility, trade and services.

8. Urban Expansion Zone (UE)

This zone is located at the north-east of the City, for new expansion of urbanized areas, population growth and socio-economic activities. In this zone, some construction is already proceeding. It is needed to provide the road network to connect villages near by and increase the appropriate density. It covers some villages within Saysettha District (Zones 304 and 305).

9. Rice Field Village Zone (UF)

This is the group of isolate villages surrounded by rice field. This zone should be preserved as the existing situation (low density, low facility and utility).

10. Industrial Zone (I)

This zone refers to the existing industrial area along both sides of Thaduea Road. The zone is aimed to receive the industry of category 3, but it has to follow to the specific regulation and infrastructure systems.

All new industries must be located in the industrial zone at Km 18 to Km 21 along National Route 13. It is a national industrial zone with an area of 3,000 hectares. It is necessary to invest for basic infrastructure such as road, electricity, water supply and telecommunication for inviting new industrial activities in the future.

11. Transportation Zone (T)

This zone is preserved for transportation activities, including air transport (Tr), train transport (Tf), water transport (Tp) and land transport (Tr). At present, only Tr is designated for the international airport located within Sikhothabong District.

12. Services Zone (E)

This zone is preserved for services, including military (Em), vocational (Ef), public health (Eh), sport (Es), graduate education (Ee) and commercial (Ec).

At present, Em, Ef and Eh are designated.

13. Agricultural Rice Field Zone (NA)

Within this a special zone named Zone A is included. Zone A is the rice field surrounded

by constructed areas or villages. In Zone A, there is some construction, but it is prohibited to extend the construction and new construction. The rice field is maintained as green space.

Zone NA must be free from new construction. In the irrigated rice field there is illegal land fill and building construction. Extension for construction to those areas is prohibited.

14. Conservation Zone (NE)

This zone has harmonized landscape in the City. There are some special areas such as; memorial museum, islands, ponds and natural marsh. All construction is prohibited unless it relates to recreation or relaxation activities. However, detail plan is yet to be prepared.

Regulation for Ancient Town Protection Area (ZPP Ua)

The following is the regulation items for the Ancient Town Protection Area (ZPP-Ua), the most strictly controlled zone.

a. Prohibited and Permitted Activities

a-1. Prohibited Activities

- All three categories of factory industrial activities, warehouse and storage of more than 100 square meters and extension of the existing
- Vehicle repairing, gas storage, chemical storage, etc.
- Taxi and public transport over 25 seats, parking for heavy truck

a-2. Permitted Activities

- Single house, communal house, row house, hotel and restaurant
- Public building such as: school, hospital, culture center, government office, religion building, sports center, commercial building
- Transport station, public parking, service activities
- Small-scale handicraft activities having area less than 300 square meters

b. Condition of Plot for Building Construction

b-1. Road and Access Road

- Plot must be adjacent to public road
- There must be small lane to link between plot and public road
- Lane's width must be at least 4 meters. In case of cul-de-sac lane, its length must be less than 50 meters
- Access road must follow a detail plan, and it must be approved by Urban Management Authority

b-2. Infrastructure Networks

- Plot used for building construction must access infrastructure network such as: electricity, telephone, water supply, sewer and drainage system and solid waste collection

b-3. Shape of Plot

- For row-building, plot's width with road front must be at least 4 meters.
- Total area of plot excluding preservation area must be at least 48 square meters for row-building and 140 square meters for single house.

b-4. Building Line

- All construction work must not encroach into the right of way
- Single house must be set back from right of way at least 4 meters

b-5. Set Back and Margin

- For row-building, maximum building on plot depth is 20 meters, and maximum building on front plot (adjacent to road) is 50 meters and land for entrance must be preserved.
- Rear margin shall be set back at least 2 meters from nearest part of the building to property boundary

- For single-building, rear margin and side margin must be at least 2 meters from nearest part of the building to property boundary

b-6. Building in One Plot

- For construction of two buildings in one plot, distance of the two building must be half of highest building but not less than 3 meters

b-7. Ground Coverage

- Ground coverage (E) is defined as the ratio of total areas of ground building (SE) to total plot area (ST), namely, $E=SE/ST$.
- Ground coverage is permitted up to 80%.

b-8. Building Height and Ground Surface Level

- Maximum building height is 12 meters, from ridge of a roof to ground beam
- Height of ground surface is higher than road surface but less than 0.3 meter

b-9. Appearance of a Building

- New building must be compatible with neighborhood building; façade and roof shape should be similar, height of each floor should be same level
- Building and any structure along main road must have façade as characteristic of zone

b-10. Car Parking

- Car parking must be outside the right of way
- Communal house: one parking for two households
- Hotel: one parking for 3 rooms
- School, office, bank: one parking for 20 square meters of total used area
- Restaurant, club: one parking for 4 square meters of total used area
- Market, commercial building: one parking for 10 square meters of total used area

b-11. Open Space and Tree Planting

- Open space and tree planting must follow the detail plan
- Tree cutting is prohibited unless it is barrier construction work but should be permitted by Urban Management Authority. Tree must be replanted with the same specie.
- Area for tree planting must be preserved between road and fence.

c. Defined Density

c-1. Plot Ratio

- Plot Ratio ≤ 3

c-2. Plot Ratio over Standard

- Plot Ratio over Standard is not allowed.

*Extracted from “Dr Ronald R Allan, Consultant in Transport Policy and Economics
ron@ron.org, [December 2005], DESCRIPTIVE & DIAGNOSTIC ANALYSIS OF ROAD
TRANSPORT IN LAO PDR, Institutional and Regulatory Framework for Road Transport Services
in Lao PDR”*

3.5 Local Government

Local government comes under the Law on Local Administration No.47/NA, passed by the National Assembly, 21 October 2003.

Local government has three levels.

Provincial level	provinces, cities, special zones
District level	districts, municipalities
Village level	villages.

Currently, the only city is Vientiane Capital. For an urban area to be declared a city it must be a significant economic, political and cultural centre with developed infrastructure and a population of at least 80,000. For a new province to be declared it must be well developed and have at least five districts and a population of 120,000. (Article 12.)

Provinces and the special zone have ‘governors’. Cities have ‘mayors’.

Districts have ‘district chiefs’. Municipalities have ‘municipality chiefs’.

Villages have ‘village heads’.

Article 3 on the ‘role’ of local administrations delegates to local administrations responsibility for:

1. political, socio-economic and cultural affairs
2. human resource management
3. utilisation, preservation, and protection of natural resources
4. national and local defence and security
5. such responsibilities relating to foreign relations as assigned by the government.

This is a very deep devolution of powers. The Consultant knows no precedent for delegation of even partial responsibility for 4 and 5.

Some elaboration of this list is given in Article 4, which lists the following as ‘duties’ of each local administration.

1. To implement the Constitution, laws, resolutions, orders, socio-economic development plans and State budget plans within its area of responsibility.
2. To prepare a strategic plan incorporating socio-economic development plans, State budget plans and defence and security plans based on national strategic plans.
3. To manage political, socio-economic and cultural affairs, natural resources, the environment and national defence and security.
4. To issue resolutions, decisions, orders, instructions and notifications regarding socio-economic and cultural management, and national defence and security within its area of responsibility in accordance with the laws and regulations.
5. To supervise the performance of the organizations under it.
6. To collaborate and cooperate with foreign countries as assigned by the government.
7. To exercise such other rights and perform such other duties as provided by law.

This seven-point list makes clear the supervisory functions of local administrations. National cohesion is addressed in item 1 by referring to “implementation” of national plans, etc.

Article 5 on the ‘functions’ of local administration takes matters another step.

The organization, functions and operational procedures of the local administrations are implemented in accordance with the principle of democratic centralism, [with devolution of responsibility to the local administration level]¹, which divides responsibility among management levels. The village level reports to the district level, the district level reports to the provincial level and the provincial level reports to the government under the guidance and responsibility of the Party committee² based on the Constitution and the laws.

Whilst this may seem to impose a hierarchy of authority, the fact remains that decentralization was designed as a system that builds from the bottom-up. This law does not make clear exactly what authority central government has over local governments, and local governments have over lesser local governments. It makes no mention of powers of enforcement in the event of disobedience.

3.5.1 Provincial Organizational Structure

In this section, ‘province’ includes ‘city’, and ‘governor’ includes ‘mayor’.

As stated in Article 8 of the Law on Local Administration:

The organizational structure of each provincial administration comprises:
the provincial cabinet³;
the local divisions⁴ of the line ministries

The personnel of each provincial administration comprise:
the **governor**;
the **vice-governor(s)**;
the **chief** and deputy chief **of the provincial cabinet**;
the **directors** and deputy directors **of the local divisions of line ministries**;
other personnel in the provincial administration.

Bold face type defines the participants in provincial administration meetings. (Article 17.)

On the recommendation of the Prime Minister, governors are appointed by the President of the State for five-year terms and may be reappointed for one additional term in the same place. (Governors can transferred from one province to another.) On the recommendation of the governor, vice-governors are appointed by the Prime Minister for a five year term. Vice-governors may be reappointed. (Article 16)

¹ The literal translation of the single Lao word used here is “deconcentration”. The translators believe that this is the intended meaning of that word.

² This is a reference to the committee that represents the Party at the relevant local level.

³ The cabinet is the governor’s secretariat. Its composition and duties are set out

⁴ As of 2005, ‘division’ is typically used for provincial bodies and ‘office’ is typically used for district bodies. Nevertheless, the provincial divisions of line ministries are still being called ‘departments’. Thus Ministry of CTPC has a Department of CTPC at the provincial level and Office of CTPC at the district level.

The local divisions of the line ministries are part of the provincial administration. The role of the local divisions is to act as secretariat to the ministries and to the province by managing the activities of the concerned sectors⁵, according to the principle of democratic centralism, with devolution of responsibility to the local administration level. (Article 10.)

Article 13 lists 19 ‘authorities and duties’ of the governor. He presides over the monthly provincial administration meetings. Notably, for present considerations, one of his duties is:

To appoint (or acknowledge the appointment of) directors and deputy directors of the local divisions of line ministries at provincial level, and to appoint (or acknowledge the appointment of) the heads of office of the line ministries at the district level.

Whilst Article 13 appears to make it clear that the governor does indeed govern, Article 58 refers to consensus.

The local administrations operate in line with the principles of democratic centralism and unified leadership based on consensus to be achieved at meetings of the members of such local administration, and division of responsibility;

Since consensus is not possible without concurrence of the governor, a pragmatic interpretation is, still, that the governor does govern.

3.5.2 *Departments of Communications, Transport, Post and Construction*

As stated in the preceding section, the Department of Communications, Transport, Post and Construction (DCTPC) is part of the provincial administration. DCTPC staff and activities are funded by the provincial budget.

Article 8 of the Law on Road Transport states as follows.

The rights and duties of provincial Departments of Communication, Transport, Post and Construction are as follows:

- To interpret strategic and master plans of road transport development;
- To study and comment on applications for undertaking domestic commercial transport enterprises within respective province, municipality or special zone;
- To register vehicles within the province in accordance with the regulations set forth by the Ministry of Communication, Transport, Post and Construction;
- To manage the vehicle registration list within respective province;
- To issue transport vehicle permit operating within the country;
- To manage and inspect road transport operations within country, cross border and transit transport;
- To inspect transport vehicle technique , manage repair workshops and vehicle technical inspection stations;
- To determine the location of transport depots and manage them;
- To perform other rights and duties assigned by the Ministry of Communication, Transport, Post and Construction.

Toll collection is contracted out by the DCTPCs

⁵ For example, a local division of the public health authorities would assist the Ministry of Health by managing local activities in the sector of public health.

3.5.3 Offices of Communications, Transport, Post and Construction

Each district has an Office of Communications, Transport, Post and Construction (OCTPC).

Article 37 of the Law on Road Transport defines an OCTPC's duties as follows.

District offices of Communication, Transport, Post and Construction have a duty to manage transport vehicles and vehicle parking lots within their respective districts as assigned by the provincial Department of Communication, Transport, Post and Construction.

The OCTPC acts as the DCTPC's local agency. Table 1 lists the numbers of staff employed.

Table 1 Number of DCTPC and OCTPC staff in the provinces, April 2004

Office	Provincial DCTPCs					District OCTPCs	
	Road & Bridge Office	Transport Office	Vehicle Management Office	Other	Total	Number of offices	No. of staff
Vientiane	14	12	41	17	84	9	31
Phongsali	10	5	-	26	41	7	9
Luang Namtha	19	8	5	19	51	5	15
Oudomxai	16	8	-	19	43	7	26
Bokeo	9	7	-	24	40	5	14
Luang Prabang	22	4	6	19	51	10	22
Huaphanh	10	7	2	15	34	8	15
Xayaburi	11	10	-	24	45	10	33
Xiengkhuang	8	4	5	28	45	7	14
Vientiane	16	4	8	21	49	12	37
Borikhamxai	10	7	6	22	45	7	24
Khammouane	17	9	8	28	62	9	19
Savannakhet	37	10	13	35	95	15	62
Saravan	14	4	7	18	43	8	18
Xekong	13	4	4	20	41	4	9
Champasak	18	11	12	22	63	10	26
Attapeu	11	7	-	21	39	5	12
Xaisomboun	9	6	-	16	31	3	6

DCTPC

Land & River Transport Management Division

**Unit I
Planning Unit**

- 1/** Research Planning-Roads-Boats Transportation Companies & Community.
- 2/** Transportation Prices Management
- 3/** Ports & Bus Stations Management.
- 4/** Cars Border past Issuing. - Permission for Transportation (Bus, Taxi, Cars, Boats) & Recording Book for Transportation.
- 5/** Summarize on Land-River Transportation.

**Unit II
Vehicle Management Unit**

- 1/** Vehicles Boats Registrated Management. -Vehicles Document Checking for Transferring Around the Country.
- 2/** Cars Centre Inspection Management.
- 3/** Technical Inspection for Importer Vehicles & Mechanics.
- 4/** Cars Care Centre & Mechanical Centre Management.

**Unit III
Road Safety Management Unit**

- 1/** Research, Planning Improvement in Road Safety
- 2/** Traffic Signs Management.
- 3/** Driving Schools Management.
- 4/** Checking & Adjustment for Safety Transportation.
- 5/** Monitoring & Checking for Driving Test License Issuing.

**Unit IV
Trucks Management**

- 1/** Truck's Weighting Checking & management.
- 2/** Forcing, Fining & Educating for Illegal Drivers.
- 3/** Public Advertisement in Truck's Weighting Regulations.
- 4/** Truck's Technical Management.
- 5/** Truck's Weighting Statistics.

English Translation of Title of “Vientiane, Capital of Lao PDR”

Lao people’s Democratic Republic

Peace Independence Democratic Unity Prosperity

Ministry of Foreign Affair

Cabinet

Document No. 4967/MOF.CB

To: Permanent Secretary of Prime Minister Office
Chief of Vientiane, Cabinet.

Subject: The Official English Title of “Nakhonluang Viengtiane”

The Ministry of Foreign Affair would like to officially inform that after having a number of studies and a series of discussions on the appropriate English title to define “Nakhonluang Vientiane”, we have received several useful comments on the above issue as following.

1. The English word “**Vientiane Capital City**” has the meaning of the “Capital City of the Country, Vientiane” in which we commonly name it for Vientiane. In terms of local administration, the City of Vientiane is equivalent to the level of the Province (Khueng). Its boundary covers attached **Districts** (Muang) of Chanthaboury, Sisattanak, Sikhottabong, etc.
2. The English word “**Vientiane Capital**” was originally used to avoid confusion with “**Vientiane Province**”. Thus, in order to designate that, it can be called only “Vientiane” for the Capital of Country and in writing, it should be “**Vientiane, Capital of Lao PDR**”
3. The English word “**Vientiane City**”, however, is used; it means only **Vientiane City** which may exclude attached districts and cannot be regarded as the same level of the Province in administration. For instance if we mention “**Manila Metropolitan**”, there are 13 million population and 7 cities. However, if we mention “**Manila City**”, the Filipinos always understand that we mean “**Old Manila**” which was commonly known when the country was a Spanish colonial. Besides, the Office of public administration is located in the “**Old Manila**”. As a result, there is still confusion until recently. Another Example is “Krung Thep Maha Nakhon” is well-known in Thai language, however, in international term, this word is commonly replaced by the word “**Bangkok**”.

Since 6 May 2003, the Lao Constitution has renamed the Capital as “Nakhon Luang Vientiane” and it has never been interpreted the meaning in English. However, it was rather called “**Vientiane**” only. Therefore, it is not necessary to amend or inform to international parties as this change could affect a number of documents, especially the ones that have already been translated. In addition, the word “**Vientiane**” is more widely used international recognition such as the city code for registration of an air ticket is “**VTE**”.

In addition, not many countries are using the word City to refer the capital city, and this word is rather used for describing a Main City such as “**Ho Chi Minh City**”. But the Capital of Viet Nam is “**Hanoi**” only.

As a result, we shall write “Nakhoneluang Vientiane” in Laos (Vientiane Capital City in English), but the English written name should remain “**Vientiane**” in order to avoid further confusion.

Besides, in order to say that Vientiane is the Capital City of Lao PDR, we shall say only “Nakhoneluang Vientiane” in Lao Language, and not repeating as “Nakhoneluang Vientiane is the Capital of Lao PDR.

Therefore in English we should say “**Vientiane, Capital of the Lao PDR**”, but not say “**Vientiane Capital City of the Lao PDR**” nor “**Vientiane City, Capital of the Lao PDR**”

Thus this is to inform the Chief of Cabinet, Prime Minister Office and Vientiane about this instruction

Vientiane, 7 July 2004
Phongsavath BOUPHA
Vice-Minister of Foreign Affairs
Official Signed and Stamped

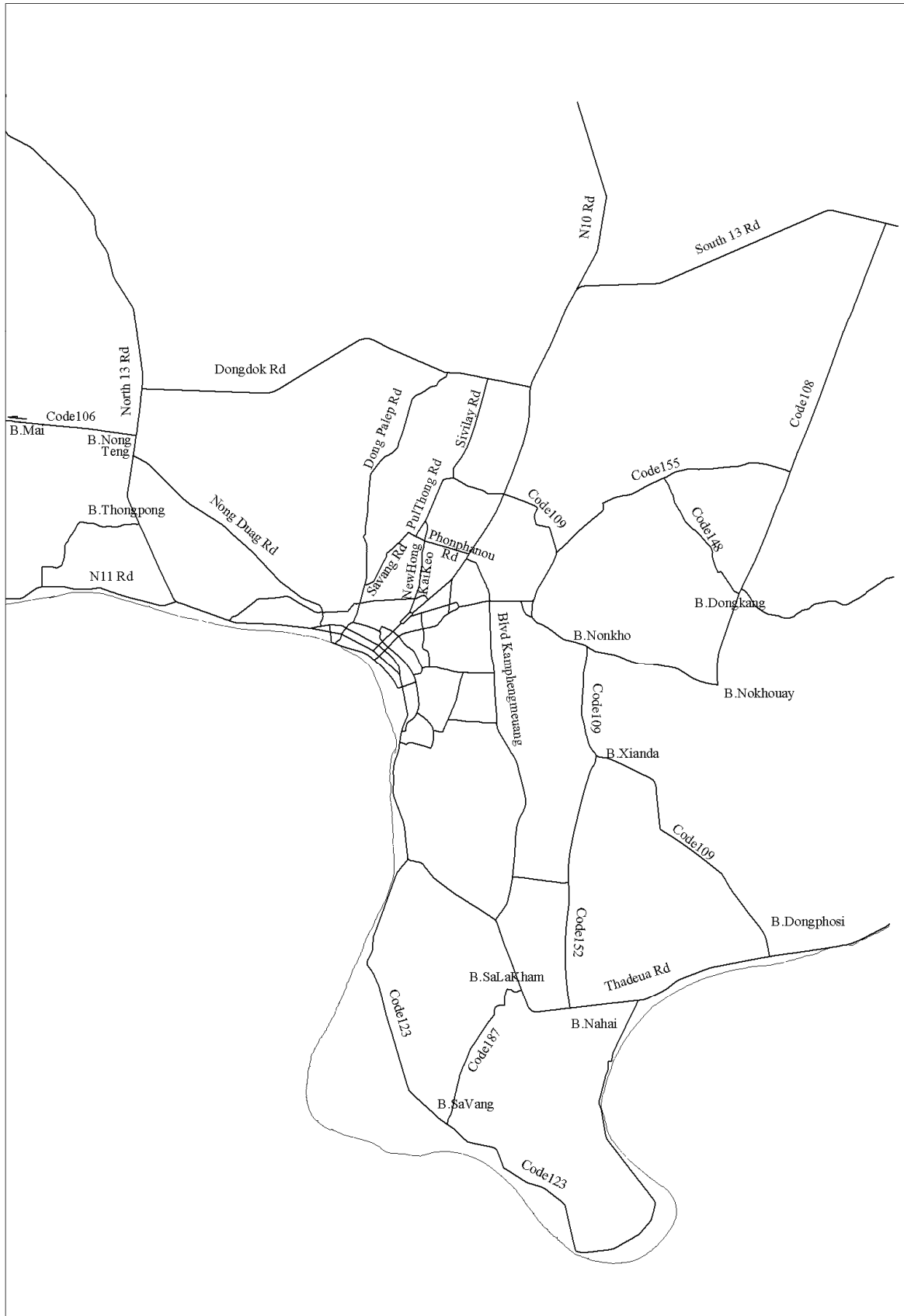
APPENDIX 4

EXISTING ROAD NETWORK

4 Result of Road Inventory Survey

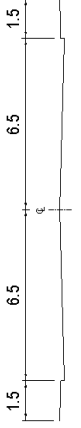

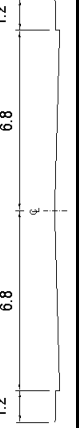
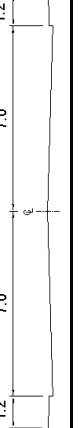
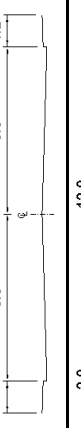
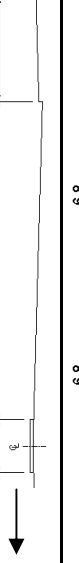

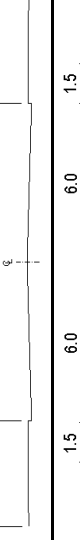
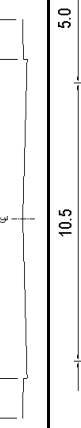
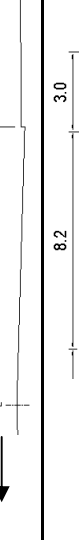
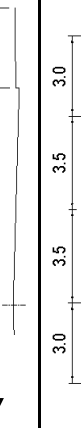

A4-1

Result of Road Inventory Survey

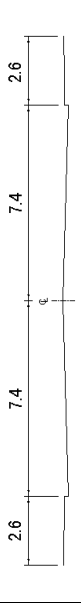

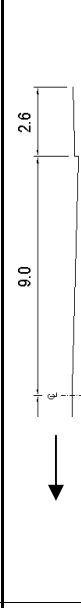

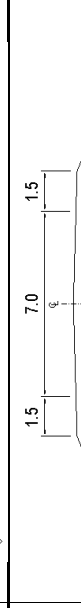
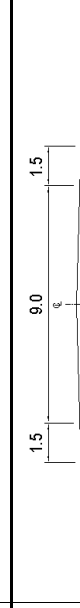

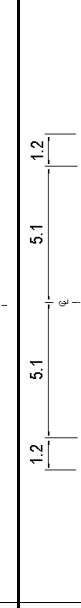


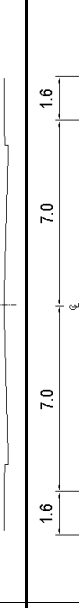
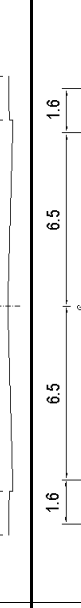


Investigated Road Name

INVENTORY FOR ARTERIAL ROAD(1/5)






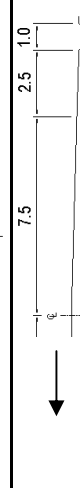
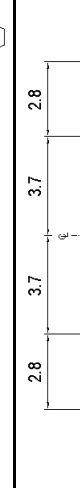
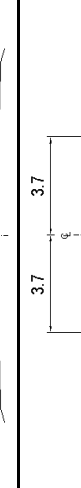
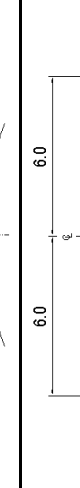
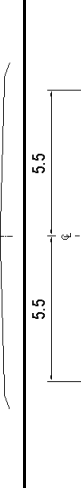


Road Section	Road Class	Length (km)	Cross Section	Surface Type	Condition	Remarks
Sibunheuang Rd	Urban	2.0		DBST	Good	
New Rd. Hong Kai Keo	Urban	0.6		DBST	Good	
Lao-Thai Rd.	Urban	1.9		Concrete	Good	
Sokpaluang Rd. ^(a)	Urban	0.5		Concrete	Good	
Sokpaluang Rd. ^(b)	Urban	0.9		Concrete	Good	
Lane Xang Ave.	National	1.5		Concrete	Good	13 South
That Luang Rd. ^(a)	Urban	0.9		Asphalt	Good	
That Luang Rd. ^(b)	Urban	1.7		Asphalt	Good	
Sisangvone Rd. ^(a)	Urban	1.0		Asphalt	Good	
Sisangvone Rd. ^(b)	Urban	0.5		Asphalt	Good	
Mahosot Rd. ^(a)	Urban	0.1		Asphalt	Good	
Mahosot Rd. ^(b)	Urban	0.2		Asphalt	Good	

INVENTORY FOR ARTERIAL ROAD(2/5)











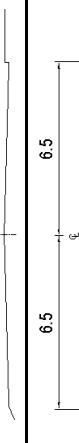
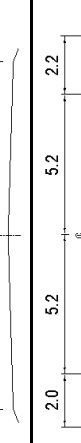
Road Section	Road Class	Length (km)	Cross Section	Surface Type	Condition	Remarks
Kaysonephomvihane Rd. ^(a)	National	0.6		Asphalt	Good	13 South
Kaysonephomvihane Rd. ^(b)	National	0.8		Asphalt	Good	13 South
Kaysonephomvihane Rd. ^(c)	National	6.0		Asphalt	Good	13 South
Kaysonephomvihane Rd. ^(d)	National	3.1		Asphalt	Good	13 South
South 13 Rd.	National	-		DBST	Good	13 South
N10 Rd.	National	-		DBST	Fair	Code 10
Nong Bone Rd.	Urban	1.0		Asphalt	Good	
Nong Duag Rd.	Urban	7.4		DBST	Good	
Fa Ngum Rd.	Urban	3.0		Asphalt	Good	
23 Singha Rd.	Urban	1.4		Asphalt	Good	
Savang Rd.	Urban	0.5		DBST	Good	
Thongkham Rd.	Urban	0.6		DBST	Good	

INVENTORY FOR ARTERIAL ROAD(3/5)

June 2007


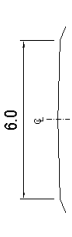
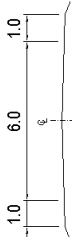
Road Section	Road Class	Length (km)	Cross Section	Surface Type	Condition	Remarks
Dongpalan Rd.	Urban	1.4		Asphalt	Good	
Saylom Rd.	Urban	0.5		Asphalt	Good	
Dongpina Rd.	Urban	2.1		Asphalt	Good	
Samsenthai Rd. ^(a)	Urban	2.1		Asphalt	Good	
Samsenthai Rd. ^(b)	Urban	1.0		Asphalt	Good	one way
Thadeua Rd. ^(a)	National	12.4		Asphalt	Good	A12
Thadeua Rd. ^(b)	National	0.9		Asphalt	Good	A12
Thadeua Rd. ^(c)	Provincial	-		DBST	very bad	code 124
Dongdok Rd.	Provincial	11.7		DBST	Fair	code 107
North 13 Rd. ^(a)	National	6.4		DBST	Fair	13 North
North 13 Rd. ^(b)	National	-		DBST	Fair	13 North
Khun Bulom Rd. ^(a)	Urban	0.3		Asphalt	Good	

INVENTORY FOR ARTERIAL ROAD(4/5)



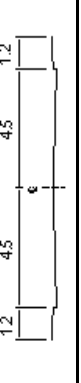
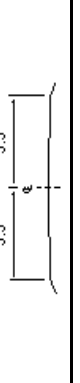
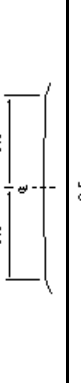
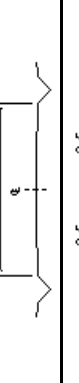
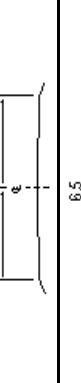
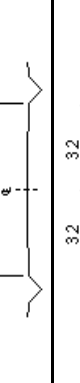
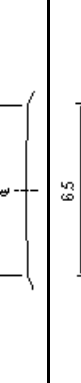
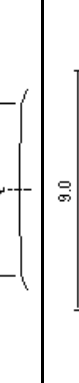

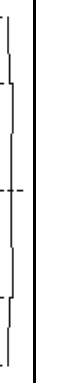
Road Section	Road Class	Length (km)	Cross Section	Surface Type	Condition	Remarks
Khun Bulom Rd. ^(b)	Urban	0.5		Asphalt	Good	
Khun Bulom Rd. ^(c)	Urban	0.8		Asphalt	Good	
Khun Bulom Rd. ^(d)	Urban	0.3		Asphalt	Good	
Khu Viang Rd. ^(a)	Urban	0.2		Asphalt	Good	
Khu Viang Rd. ^(b)	Urban	1.1		Asphalt	Good	
Khu Viang Rd. ^(c)	Urban	1.8		Asphalt	Good	
Asiane Rd. ^(a)	Urban	3.2		DBST	Good	
Asiane Rd. ^(b)	Urban	3.0		DBST	Good	
Bldv. Kamphengmeuang ^(a)	Urban	1.4		Asphalt	Good	
Bldv. Kamphengmeuang ^(b)	Urban	3.5		Asphalt	Good	
Bldv. Kamphengmeuang ^(c)	Urban	6.0		Asphalt	Good	
Phonxay Rd.	Urban	1.6		Asphalt	Good	

INVENTORY FOR ARTERIAL ROAD(5/5)




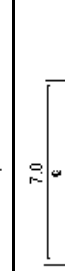

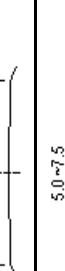






June 2007

Road Section	Road Class	Length (km)	Cross Section	Surface Type	Condition	Remarks
N11 Rd. ^(a)	National	3.5		DBST	Fair	Code 11
N11 Rd. ^(b)	National	-		Gravel	Fair	Code 11
Ban Nong Teng - Ban Mai	Provincial	-		DBST	Fair	Code 106

INVENTORY FOR COLLECTOR ROAD(1/3)

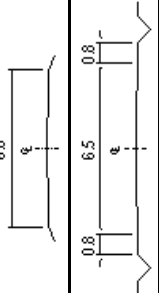
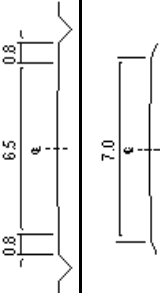
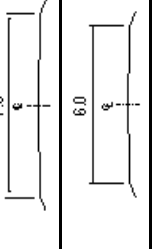
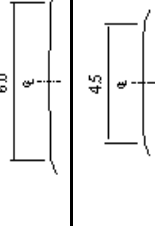

Road Section	Road Class	Length (km)	Cross Section	Surface Type	Condition	Remarks
New Rd. Hong Kai Keo	Urban	0.6		DBST	Good	
Sokpaluang Rd.	Urban	0.6		DBST	Good	
Phonpapao Rd.	Urban	1.3		DBST	Fair	
Jct.13S Km 6 - B.Xiangda - B.Dongphosi ^(a)	Provincial	4.4		DBST	Fair	Code 109
Jct.13S Km 6 - B.Xiangda - B.Dongphosi ^(b)	Provincial	5.6		DBST	Good	Code 109
Jct.13S Km 6 - B.Xiangda - B.Dongphosi ^(c)	Provincial	8.6		Gravel	very bad	Code 109
B.Xiangda - B.Donbanxang - Thadeua Rd. (Nahai) ^(a)	District	3.6		DBST	Good	Code 152
B.Xiangda - B.Donbanxang - Thadeua Rd. (Nahai) ^(b)	District	3.4		Gravel	very bad	Code 152
Blvd. Kamphengmeuang - 3 Jct. Code 152	Urban	1.5		DBST	Fair	
Phonphanou Rd. ^(a)	Urban	1.6		DBST	Bad	
Phonphanou Rd. ^(b)	Urban	0.2		DBST	Bad	
That Khao Rd.	Urban	0.4		Asphalt	Good	

INVENTORY FOR COLLECTOR ROAD(2/3)

Road Section	Road Class	Length (km)	Cross Section	Surface Type	Condition	Remarks
Dong Palep Rd. ^(a)	Urban	4.7		DBST	Fair	
Dong Palep Rd. ^(b)	Urban	2.3		DBST	Good	
Dong Palan Rd.	Urban	0.3		DBST	Good	
Sivilai Rd. ^(a)	Urban	1.5		DBST	Fair	
Sivilai Rd. ^(b)	Urban	3.1		DBST	Fair	
Savang Rd. ^(a)	Urban	1.0		DBST	Bad	
Savang Rd. ^(b)	Urban	0.9		DBST	Fair	
Pul Thong Rd.	Urban	2.2		DBST	Fair	
Jct. Ji Nie Mo - B.Thakhek - B.Nahai ^(a)	District	18.1		DBST	Bad	Code 123
Jct. Ji Nie Mo - B.Thakhek - B.Nahai ^(b)	District	4.4		Gravel	very bad	Code 123
Jct. SaNamMar - Jct. B.Mai ^(a)	District	2.2		DBST	Fair	Code 155
Jct. SaNamMar - Jct. B.Mai ^(b)	District	6.2		Gravel	Bad	Code 155

INVENTORY FOR COLLECTOR ROAD(3/3)

June 2007

Road Section	Road Class	Length (km)	Cross Section	Surface Type	Condition	Remarks
13S Km21 - B.KhokSaAdd - B.Dongphosi	District	15.5		Gravel	Bad	Code 108
B.Nonkho - B.Nakhouay	Urban	3.2		DBST	Fair	
Jct. 13N (B.Thongpong) - B.Nonkeo - N11 Rd.	Urban	4.1		DBST	Bad	
B.Dongkang - B.XokGnai	District	4.1		Gravel	Bad	Code 148
B.SaLaKham - B.SaVang	District	4.8		Gravel	very bad	Code 187

APPENDIX 5

TRAFFIC SURVEY AND ANALYSIS

5-1	Traffic Survey Form	A5-1
5-2	Result of Cordon Line Survey	A5-4
5-3	Result of Screen Line Survey	A5-5
5-4	Result of Travel Speed Survey	A5-8

Person Trip Questionnaire Form

FORM 1: HOUSEHOLD INFORMATION

OFFICIAL USE			
Name of surveyor			
Name of supervisor			
Name of coder			
Name of encoder			
Name of area coordinator			
Date of survey (dd:mm)			
Date of trips surveyed (dd:mm)			
Household No.			

INSTRUCTION: To be completed by HEAD of HOUSEHOLD

(1) ADDRESS OF HOUSEHOLD

_____	_____	_____				
No. / Street	Village	Estate / District	<table border="1" style="width: 100%;"> <tr> <td style="width: 33%;"></td> <td style="width: 33%;"></td> <td style="width: 33%;"></td> </tr> </table>			

Province						

(2) HOW MANY PEOPLE RESIDE IN YOUR HOUSEHOLD?

	Under 5yrs. old	6yrs. and above	Household Helpers (ex. Maid)
Male			
Femal			
Total			

(3) WHAT IS THE TOTAL MONTHLY HOUSE-HOLD INCOME? (pls. check one)

<input type="checkbox"/>	1. Under 299,999 Kip
<input type="checkbox"/>	2. 300,000-599,999 Kip
<input type="checkbox"/>	3. 600,000-999,999 Kip
<input type="checkbox"/>	4. 1,000,000-1,999,999 Kip
<input type="checkbox"/>	5. 2,000,000-3,999,999 Kip
<input type="checkbox"/>	6. 4,000,000-5,999,999 Kip
<input type="checkbox"/>	7. 6,000,000-7,999,999 Kip
<input type="checkbox"/>	8. 8,000,000-9,999,999 Kip
<input type="checkbox"/>	9. 10,000,000-14,999,999 kip
<input type="checkbox"/>	10. 15,000,000 Kip OVER

(4) HOW MANY VEHICLES ARE OWNED BY HOUSEHOLD

TYPE	NO. OF UNITS
1. BICYCLE	
2. MOTOR CYCLE	
3. CAR /4WD	
4. TRUCK	
5. OTHERS	

(5) HOW MANY VEHICLES ARE RENTED BY COMPANY OR GOVERNMENT

TYPE	NO. OF UNITS
1. BYCYCLE	
2. MOTOR CYCLE	
3. CAR /4WD	
4. TRUCK	
5. OTHERS	

(6) OWNERSHIP OF HOUSE AND LAND

	OWN	RENTED	P/MONTH
HOUSE and LAND	<input type="checkbox"/>	<input type="checkbox"/>	_____ Kip

(7) LENGTH OF STAY IN PRESENT HOUSE

YEARS

FORM 2: HOUSEHOLD MEMBER INFORMATION

OFFICIAL USE	HOUSEHOLD No.	ID No.

INSTRUCTION: To be completed for every HOUSEHOLD MEMBER aged 5yrs, and above

(1) AGE _____ (2) SEX:(pls check) Male Female

(3) WORK ADDRESS

No. / Street	Village	District	
Province			

(4) SCHOOL ADDRESS

No. / Street	Village	District	
Province			

(5) OCCUPATION

(Pls Encircle)

1. Officials of Govt. & Special Interest Org., Corporate Exec., Mangers, Managing
 2. Professionals
 3. Technical & Assoc. Professionals
 4. Clerical Worker
 5. Service Workers & Shop & Market Workers
 6. Farmers, Forestry Workers & Fisherman
 7. Traders & Related Workers
 8. Plant & Machine Operators & Assemblers
 9. Laborers & Unskilled Workers
 10. Teacher & School Workers
 11. Student (Elem.)
 12. Student (H.S. & Univ.)
 13. Housewife
 14. Jobless
 15. Others, specify _____

(6) EMPLOYMENT SECTOR

(Pls Encircle)

1. Agriculture, Hunting & Forestry
 2. Fishing
 3. Mining & Quarrying
 4. Manufacturing
 5. Electricity, Gas & Water Supply
 6. Construction
 7. Wholesales & Retail Trade; Repair of Motor Vehicles Motorcycles, Personal & Household Goods
 8. Hotels & Restaurants
 9. Transport, Storage & Comm.
 10. Financial Intermediation
 11. Real Estate, Renting & Business Activities
 12. Public Adm. & Defense
 13. Education
 14. Health & Social Work
 15. Other Community, Social & Personal Service
 16. Private Households
 17. Extra-territorial Organizations

(7) MONTHLY INCOME

(Pls Encircle)

1. Under 299,999 Kip
 2. 300,000-599,999 Kip
 3. 600,000-999,999 Kip
 4. 1,000,000-1,999,999 Kip
 5. 2,000,000-3,999,999 Kip
 6. 4,000,000-5,999,999 Kip
 7. 6,000,000-7,999,999 Kip
 8. 8,000,000-9,999,999 Kip
 9. 10,000,000-14,999,999 Kip
 10. 15,000,000 Kip OVER

(8) DRIVER'S LICENSE HELD.

1. Yes 2. No

FORM 3:

TRIP INFORMATION

INSTRUCTION: To be completed for every HOUSEHOLD MEMBER aged 6yrs. and above

OFFICIAL USE

HOUSEHOLD No.

ID No.

ORIGIN AND DESTINATION	TRIP INFORMATION	1st TRIP	2nd TRIP	3rd TRIP	4th TRIP	5th TRIP
(1) ORIGIN Where did this trip begin? (Give address/land mark, famous bldg. nearby)	INFORMATION IS AS IN OF 1st TRIP a. No. / Street Village District Province b. <input type="text"/> c. : AM Hours Minutes PM d. : AM Hours Minutes PM e. <input type="text"/>	INFORMATION IS AS IN OF 2nd TRIP b. <input type="text"/> c. : AM Hours Minutes PM d. : AM Hours Minutes PM e. <input type="text"/>	INFORMATION IS AS IN OF 3rd TRIP b. <input type="text"/> c. : AM Hours Minutes PM d. : AM Hours Minutes PM e. <input type="text"/>	INFORMATION IS AS IN OF 4th TRIP b. <input type="text"/> c. : AM Hours Minutes PM d. : AM Hours Minutes PM e. <input type="text"/>	INFORMATION IS AS IN OF 5th TRIP b. <input type="text"/> c. : AM Hours Minutes PM d. : AM Hours Minutes PM e. <input type="text"/>	
	(2) INSTITUTION OF ORIGIN b. <input type="text"/>	b. <input type="text"/>	b. <input type="text"/>	b. <input type="text"/>	b. <input type="text"/>	
	(3) TIME STARTED c. : AM Hours Minutes PM d. : AM Hours Minutes PM e. <input type="text"/>	c. : AM Hours Minutes PM d. : AM Hours Minutes PM e. <input type="text"/>	c. : AM Hours Minutes PM d. : AM Hours Minutes PM e. <input type="text"/>	c. : AM Hours Minutes PM d. : AM Hours Minutes PM e. <input type="text"/>	c. : AM Hours Minutes PM d. : AM Hours Minutes PM e. <input type="text"/>	
	(4) TIME of ARRIVAL d. : AM Hours Minutes PM e. <input type="text"/>	d. : AM Hours Minutes PM e. <input type="text"/>	d. : AM Hours Minutes PM e. <input type="text"/>	d. : AM Hours Minutes PM e. <input type="text"/>	d. : AM Hours Minutes PM e. <input type="text"/>	
	(5) INSTITUTION of DESTINATION e. <input type="text"/>	e. <input type="text"/>	e. <input type="text"/>	e. <input type="text"/>	e. <input type="text"/>	
(6) DESTINATION Where did this trip end? (Give address/land mark, famous bldg. nearby)	No. / Street Village District Province f. <input type="text"/>	No. / Street Village District Province f. <input type="text"/>	No. / Street Village District Province f. <input type="text"/>	No. / Street Village District Province f. <input type="text"/>	No. / Street Village District Province f. <input type="text"/>	
	g. <input type="text"/>	g. <input type="text"/>	g. <input type="text"/>	g. <input type="text"/>	g. <input type="text"/>	
	TRANSFER POINT 1st Transfer Next Mode 2nd Transfer Next Mode 3rd Transfer Next Mode 4th Transfer	TRANSFER POINT 1st Transfer Next Mode 2nd Transfer Next Mode 3rd Transfer Next Mode 4th Transfer	TRANSFER POINT 1st Transfer Next Mode 2nd Transfer Next Mode 3rd Transfer Next Mode 4th Transfer	TRANSFER POINT 1st Transfer Next Mode 2nd Transfer Next Mode 3rd Transfer Next Mode 4th Transfer	TRANSFER POINT 1st Transfer Next Mode 2nd Transfer Next Mode 3rd Transfer Next Mode 4th Transfer	
	Original Mode Next Mode Next Mode Next Mode	Original Mode Next Mode Next Mode Next Mode	Original Mode Next Mode Next Mode Next Mode	Original Mode Next Mode Next Mode Next Mode	Original Mode Next Mode Next Mode Next Mode	
	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	
(7) TRIP PURPOSE	No. / Street Village District Province f. <input type="text"/>	No. / Street Village District Province f. <input type="text"/>	No. / Street Village District Province f. <input type="text"/>	No. / Street Village District Province f. <input type="text"/>	No. / Street Village District Province f. <input type="text"/>	
	g. <input type="text"/>	g. <input type="text"/>	g. <input type="text"/>	g. <input type="text"/>	g. <input type="text"/>	
	TRANSFER POINT 1st Transfer Next Mode 2nd Transfer Next Mode 3rd Transfer Next Mode 4th Transfer	TRANSFER POINT 1st Transfer Next Mode 2nd Transfer Next Mode 3rd Transfer Next Mode 4th Transfer	TRANSFER POINT 1st Transfer Next Mode 2nd Transfer Next Mode 3rd Transfer Next Mode 4th Transfer	TRANSFER POINT 1st Transfer Next Mode 2nd Transfer Next Mode 3rd Transfer Next Mode 4th Transfer	TRANSFER POINT 1st Transfer Next Mode 2nd Transfer Next Mode 3rd Transfer Next Mode 4th Transfer	
	Original Mode Next Mode Next Mode Next Mode	Original Mode Next Mode Next Mode Next Mode	Original Mode Next Mode Next Mode Next Mode	Original Mode Next Mode Next Mode Next Mode	Original Mode Next Mode Next Mode Next Mode	
	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	
(8) MODE of TRAVEL (9) TRANSFER If you transferred to another vehicle / mode of travel during the trip, state the mode you changed to and the place. (Give street intersection/ famous bldg. or land mark).	No. / Street Village District Province f. <input type="text"/>	No. / Street Village District Province f. <input type="text"/>	No. / Street Village District Province f. <input type="text"/>	No. / Street Village District Province f. <input type="text"/>	No. / Street Village District Province f. <input type="text"/>	
	g. <input type="text"/>	g. <input type="text"/>	g. <input type="text"/>	g. <input type="text"/>	g. <input type="text"/>	
	TRANSFER POINT 1st Transfer Next Mode 2nd Transfer Next Mode 3rd Transfer Next Mode 4th Transfer	TRANSFER POINT 1st Transfer Next Mode 2nd Transfer Next Mode 3rd Transfer Next Mode 4th Transfer	TRANSFER POINT 1st Transfer Next Mode 2nd Transfer Next Mode 3rd Transfer Next Mode 4th Transfer	TRANSFER POINT 1st Transfer Next Mode 2nd Transfer Next Mode 3rd Transfer Next Mode 4th Transfer	TRANSFER POINT 1st Transfer Next Mode 2nd Transfer Next Mode 3rd Transfer Next Mode 4th Transfer	
	Original Mode Next Mode Next Mode Next Mode	Original Mode Next Mode Next Mode Next Mode	Original Mode Next Mode Next Mode Next Mode	Original Mode Next Mode Next Mode Next Mode	Original Mode Next Mode Next Mode Next Mode	
	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	
(10) DRIVER or PASSENGER (only for Passenger Car)	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	
	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	
(11) No. of PASSENGER (only for Passenger Car)	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	
	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	h. <input type="text"/> i. <input type="text"/>	

ORIGIN AND DESTINATION

- Residence (Home)
- Commercial Institution
- Office / Bank
- Factory / warehouses
- School / Universities Educational
- Recreational Place, Park
- Medical and Welfare
- Religious and Social
- Wholesale and Retail Shop
- Restaurant / Entertainment
- Others

TRIP PURPOSE

- To Home
- To Work
- To School
- Personal Business
- Firm Business
- Social
- Shopping
- Others

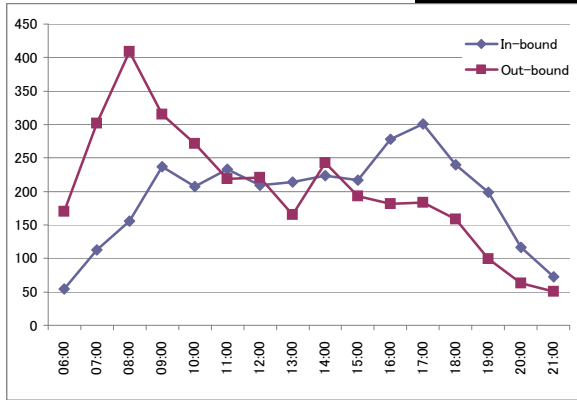
MODE of TRAVEL

- Walking
- Bicycle
- Motor Cycle
- Tuk Tuk
- Mini Bus
- Large Bus
- Pickup
- Taxi
- Private Car
- Light Truck (2 Axle)
- Heavy Truck (3 Axle)
- Trailer
- Others

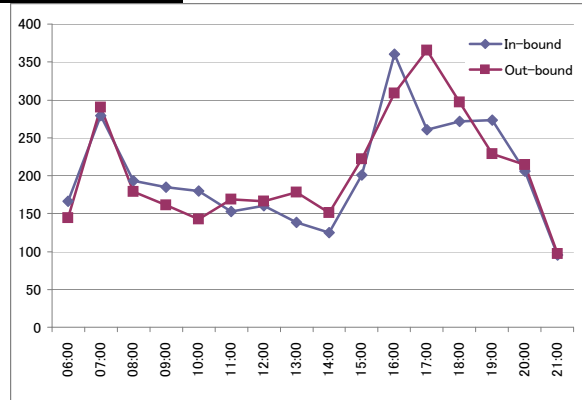
If Driver write D
If Passenger write P

If Mode of TRAVEL is Private car write No. of passenger

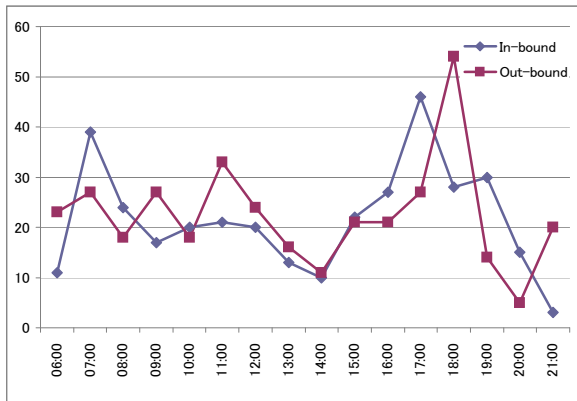
Result of Cordon Line Survey



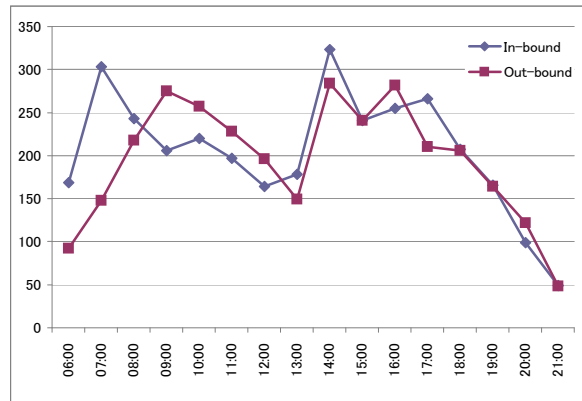
Hourly Traffic Volume at C-1 (Mekong Junction Bridge)



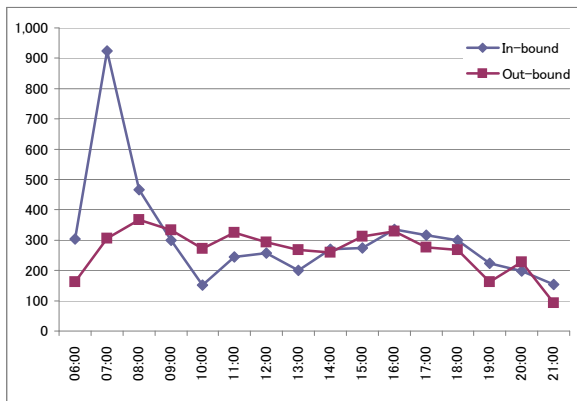
Hourly Traffic Volume at C-2 (B.Thanleng)



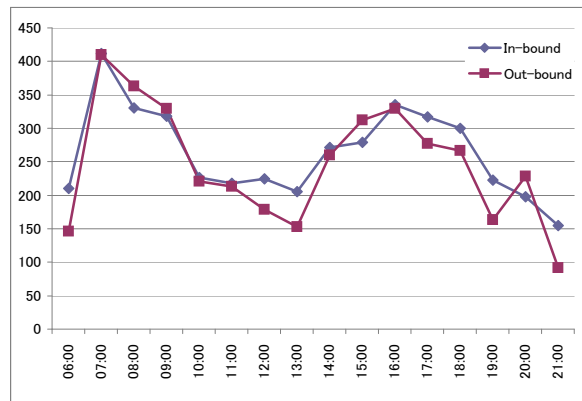
Hourly Traffic Volume at C-3 (B. Dongkang)



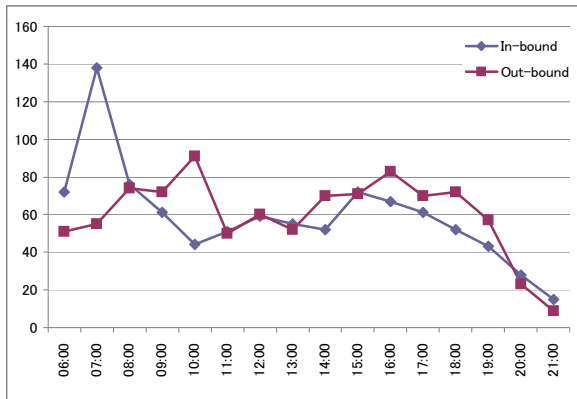
Hourly Traffic Volume at C-4 (B. Sanghin)



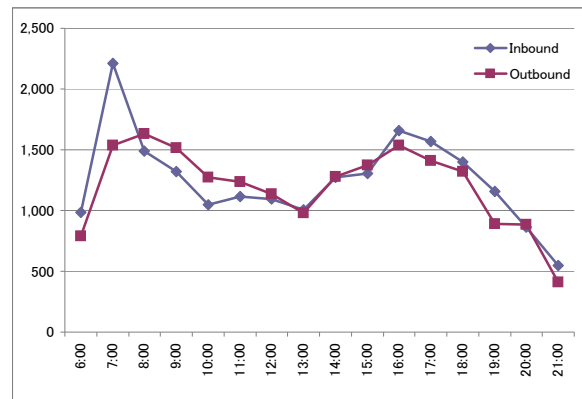
Hourly Traffic Volume at C-5 (B. Danxang)



Hourly Traffic Volume at C-6 (B. Sikout)

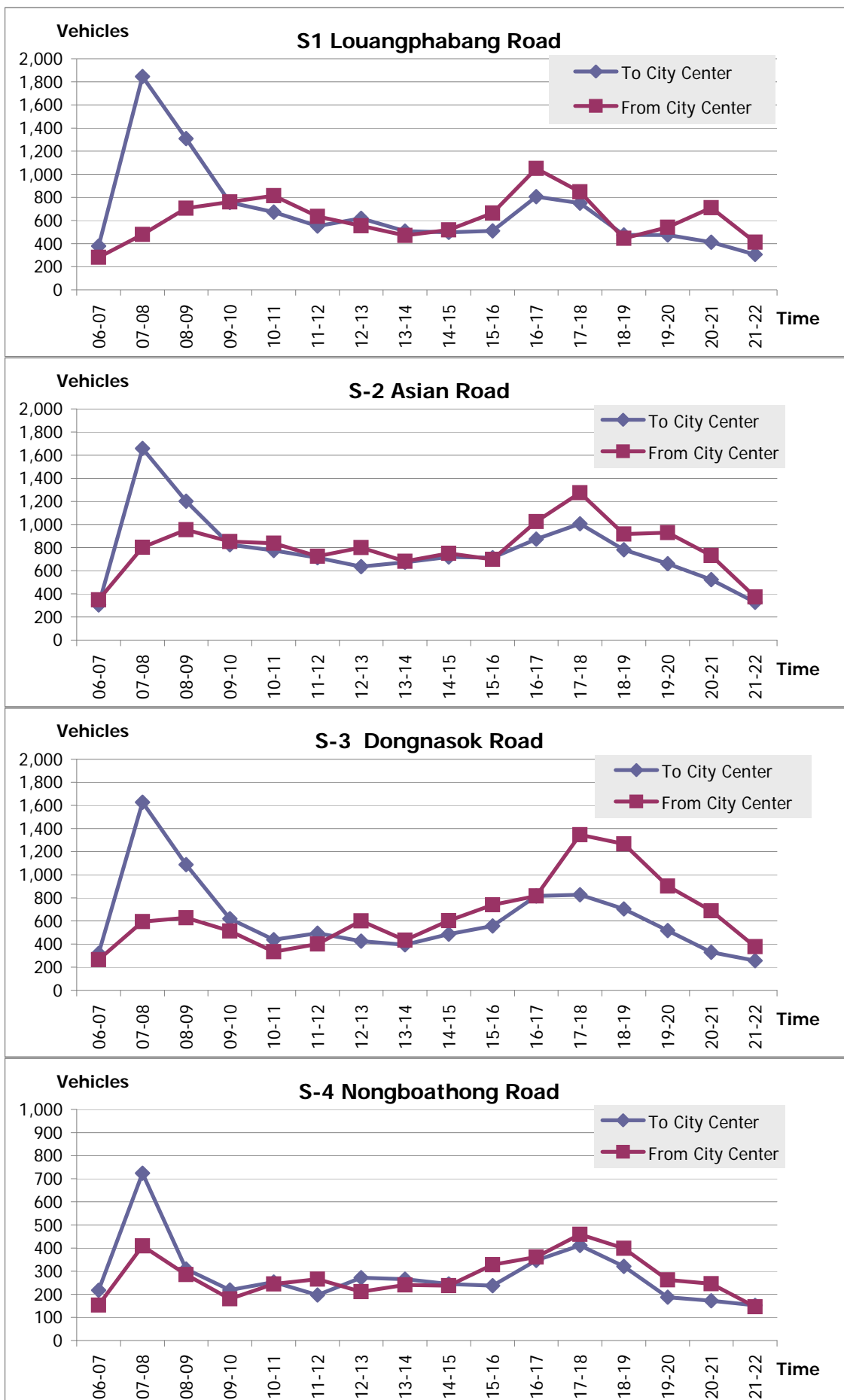


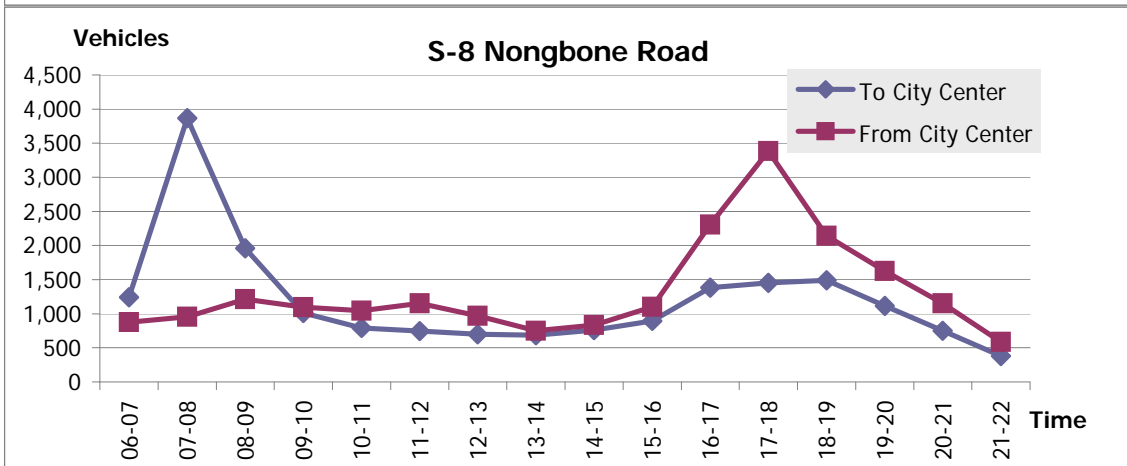
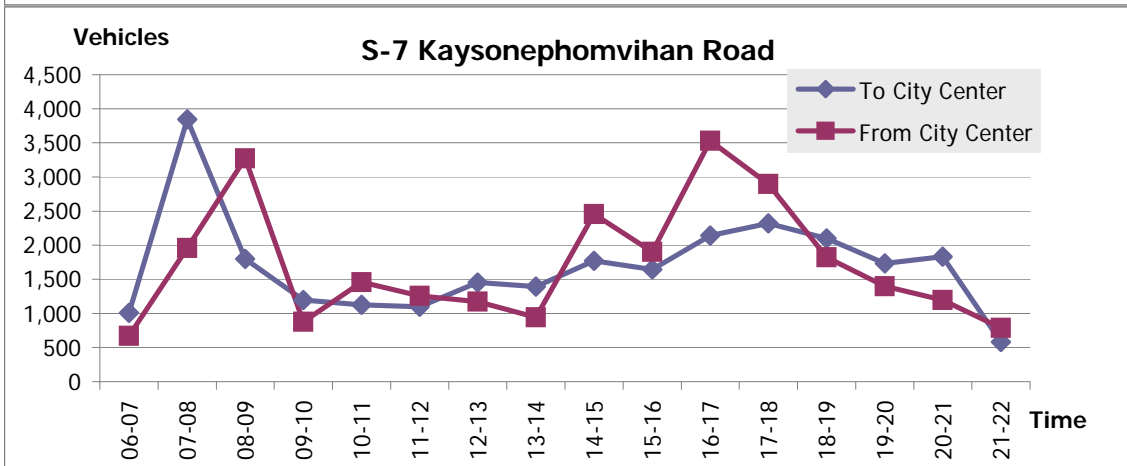
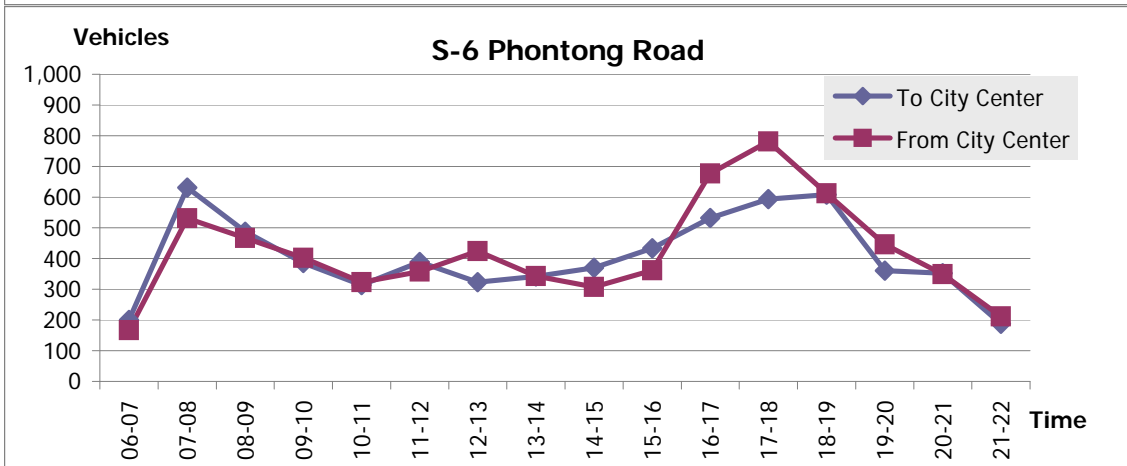
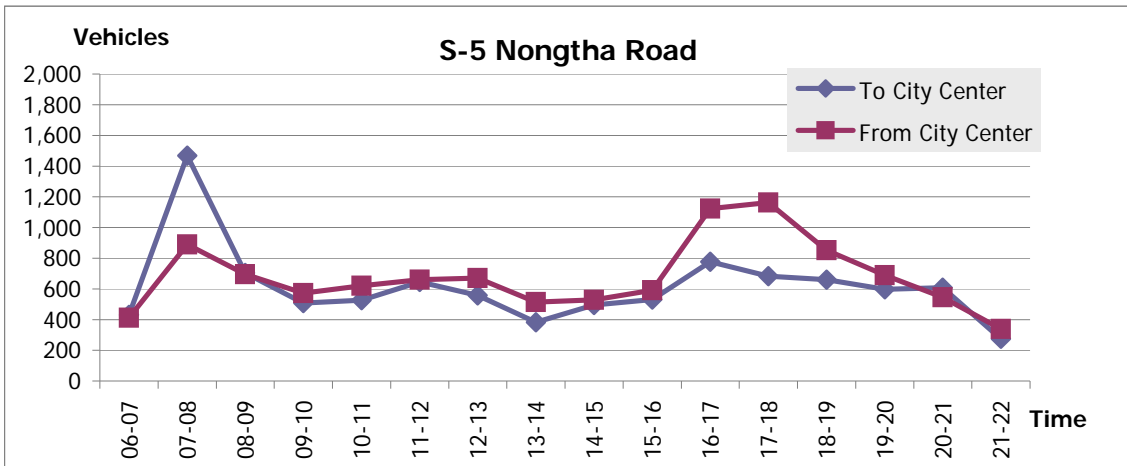
Hourly Traffic Volume at C-7 (B. Nongda)

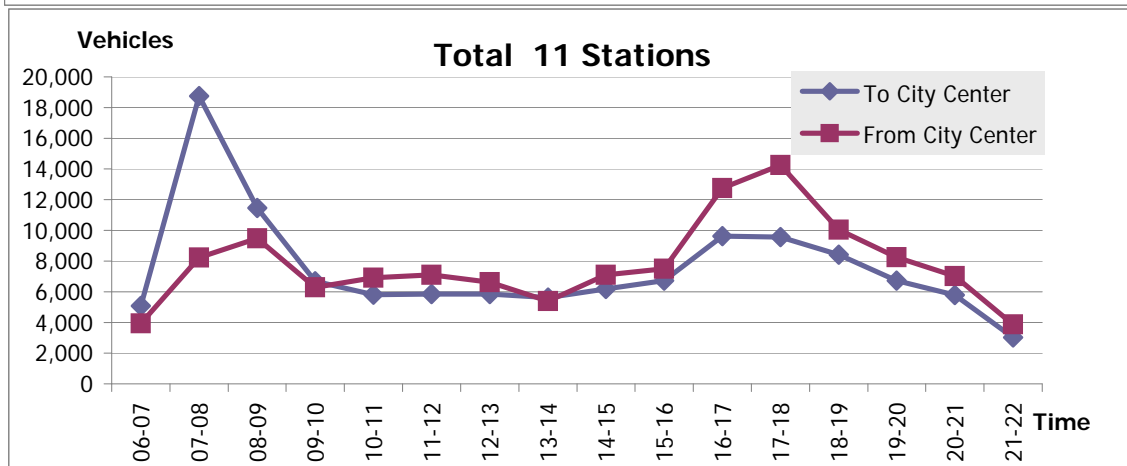
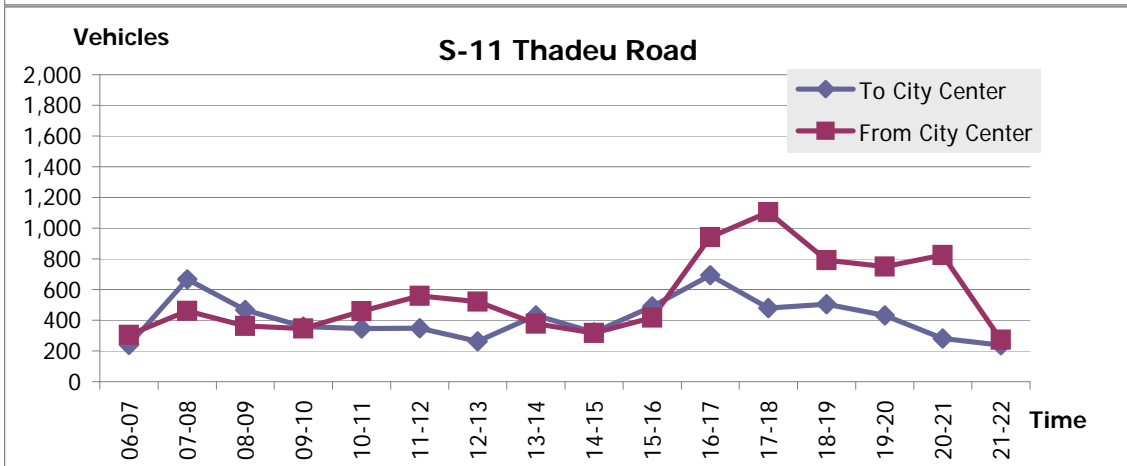
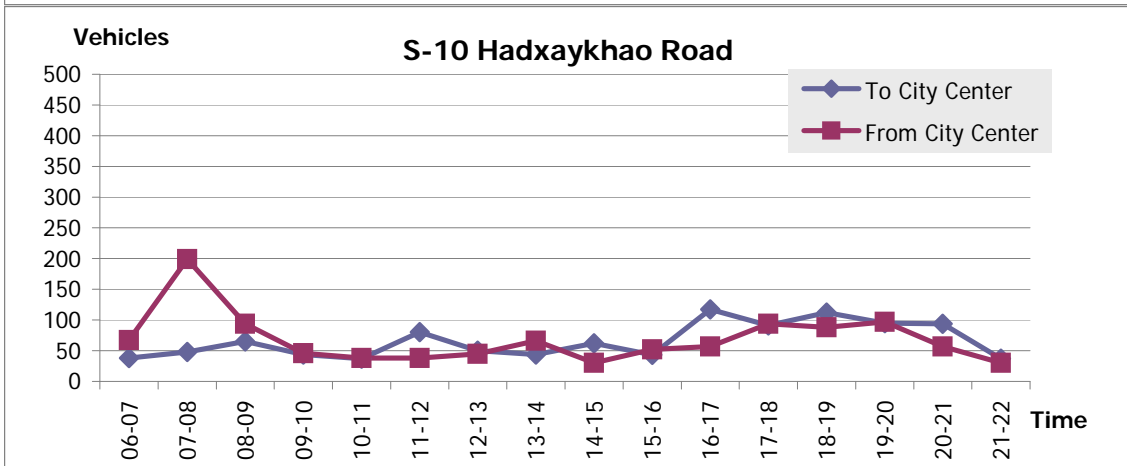
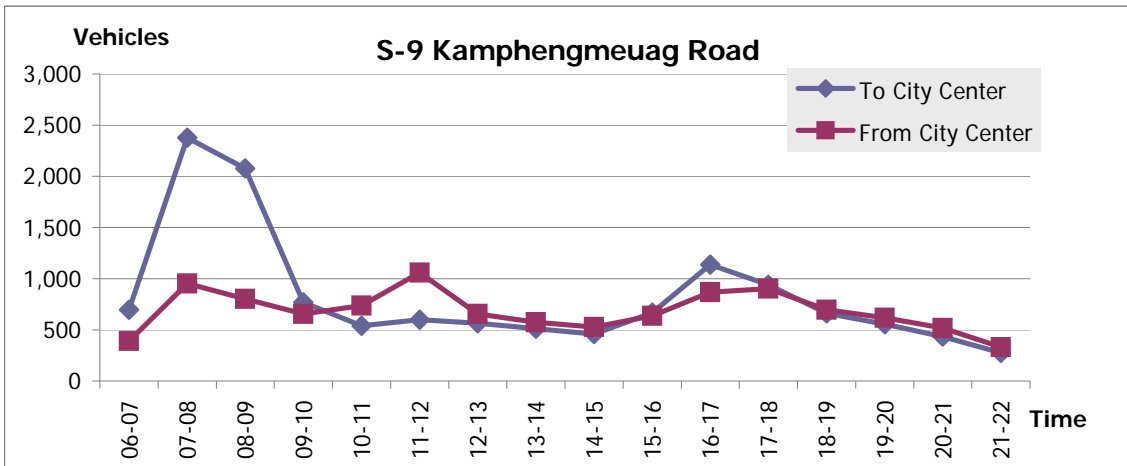


Hourly Traffic Volume Total of 7 cordon Stations

Result of Screen Line Survey







Result of Travel Speed Survey : Route TS1

Morning Peak

Direction From: HO KHAM
Hour: 7:05:00 Date: 2007/9/5

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Ho kham	0.00	7 5 0																
2	Si sa khet Intersection	0.20	7 5 54	S1	7 5 54	7 6 5										0.20	54	13.3	
3	Post office Intersection	0.30	7 6 34													0.10	40	9.0	
4	Lao-Viet bank Intersection	0.70	7 7 14	S1	7 7 14	7 7 28										0.40	40	36.0	
5	Pha tou xay Intersection	1.50	7 8 45	S1	7 8 45	7 8 53										0.80	91	31.6	
6	Phon sa at Intersection	2.05	7 9 45	S1	7 9 45	7 10 0										0.55	60	33.0	
7	Hong xeng Intersection	3.70	7 12 20													1.65	155	38.3	
8	Nong nieng Intersection	5.80	7 15 6	S1	7 15 6	7 16 6										2.10	166	45.5	
9	Dong dock Intersection	9.00	7 20 10	S1	7 20 10	7 20 30										3.20	394	27.3	
10	Don noune	12.15	7 24 20													3.15	250	45.4	
	Total															12.15	1,160	37.71	

Direction From: DON NOUINE
Hour: 7:27:00 Date: 2007/9/5

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Don noune	0.00	7 27 0																
2	Dong dock Intersection	3.00	7 30 40													3.00	220	49.1	
3	Nong nieng Intersection	6.18	7 35 25	S1	7 35 25	7 36 15										3.18	285	40.2	
4	Hong xeng Intersection	8.20	7 39 40	S1	7 39 40	7 40 22	S1	7 40 58	7 41 35							2.02	255	28.5	
5	Phon sa at Intersection	9.90	7 45 5													1.70	325	18.8	
6	Pha tou xay Intersection	10.60	7 47 50	S1	7 47 50	7 48 5	S1	7 48 17	7 48 56							0.70	165	15.3	
7	Lao-Viet bank Intersection	11.20	7 49 30	S1	7 49 30	7 50 7	S1	7 50 25	7 52 0							0.60	100	21.6	
8	Post office Intersection	11.70	7 53 7	S1	7 53 7	7 54 55										0.50	217	8.3	
9	Si sa khet Intersection	11.90	7 55 19	S1	7 55 19	7 55 55										0.20	132	5.5	
10	Ho kham	12.15	7 56 28													0.25	69	13.0	
	Total															12.15	1,768	24.74	

Noon

Direction From: HO KHAM
Hour: 11:00:00 Date: 2007/9/5

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Ho kham	0.00	11 0 0																
2	Si sa khet Intersection	0.20	11 0 34	S1	11 0 34	11 1 0										0.20	34	21.2	
3	Post office Intersection	0.30	11 1 28													0.10	54	6.7	
4	Lao-Viet bank Intersection	0.75	11 2 10	S1	11 2 10	11 3 21										0.45	42	38.6	
5	Pha tou xay Intersection	1.50	11 4 35													0.75	145	18.6	
6	Phon sa at Intersection	2.10	11 5 25	S1	11 5 25	11 5 48										0.60	50	43.2	
7	Hong xeng Intersection	3.70	11 8 7	S1	11 8 7	11 8 50										1.60	162	35.6	
8	Nong nieng Intersection	5.80	11 11 45													2.10	218	34.7	
9	Dong dock Intersection	9.00	11 15 31	S1	11 15 31	11 16 0										3.20	226	51.0	
10	Don noune	12.15	11 19 38													3.15	247	45.9	
	Total															12.15	1,178	37.13	

Direction From: DON NOUINE
Hour: 11:20:42 Date: 2007/9/5

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Don noune	0.00	11 20 42																
2	Dong dock Intersection	3.05	11 24 30	S1	11 24 30	11 24 43										3.05	228	48.2	
3	Nong nieng Intersection	6.20	11 28 30													3.15	240	47.3	
4	Hong xeng Intersection	8.20	11 31 46	S1	11 31 46	11 32 20										2.00	196	36.7	
5	Phon sa at Intersection	9.95	11 34 51	S1	11 34 51	11 35 0										1.75	185	34.1	
6	Pha tou xay Intersection	10.60	11 36 43	S1	11 36 43	11 36 47										0.65	112	20.9	
7	Lao-Viet bank Intersection	11.20	11 37 21	S1	11 37 21	11 38 25										0.60	38	56.8	
8	Post office Intersection	11.70	11 39 0	S1	11 39 0	11 39 28										0.50	99	18.2	
9	Si sa khet Intersection	11.90	11 39 49													0.20	49	14.7	
10	Ho kham	12.15	11 40 53													0.25	64	14.1	
	Total															12.15	1,211	36.12	

Evening Peak

Direction From: HOKHAM
Hour: 15:59:28 Date: 2007/9/5

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Ho kham	0.00	16 5 59																
2	Si sa khet Intersection	0.20	16 6 27	S1	16 6 27	16 6 56										0.20	28	25.7	
3	Post office Intersection	0.30	16 7 20	S1	16 7 20	16 7 43										0.10	53	6.8	
4	Lao-Viet bank Intersection	0.70	16 8 32	S1	16 8 32	16 9 7										0.40	72	20.0	
5	Pha tou xay Intersection	1.50	16 10 42	S1	16 10 42	16 11 9										0.80	130	22.2	
6	Phon sa at Intersection	2.10	16 11 41	S1	16 11 41	16 11 59										0.60	59	36.6	
7	Hong xeng Intersection	3.70	16 15 20	S1	16 15 20	16 15 39										1.60	219	26.3	
8	Nong nieng Intersection	5.80	16 19 5	S1	16 19 5	16 20 9										2.10	225	33.6	
9	Dong dock Intersection	9.00	16 23 59	S1	16 23 59	16 24 12										3.20	294	39.2	
10	Don noune	12.15	16 27 50													3.15	231	49.1	
	Total															12.15	1,311	33.36	

Direction From: DONNOON
Hour: 16:28:51 Date: 2007/9/5

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Don noune	0.00	16 28 51																
2	Dong dock Intersection	3.05	16 32 46	S1	16 32 46	16 32 59										3.05	235	46.7	
3	Nong nieng Intersection	6.15	16 36 56	S1	16 36 56	16 37 15										3.10	250	44.6	
4	Hong xeng Intersection	8.20	16 40 35	S1	16 40 35	16 40 52	S1	16 41 10	16 41 51							2.05	219	33.7	
5	Phon sa at Intersection	9.90	16 44 30	S1	16 44 30	16 44 49										1.70	235	26.0	
6	Pha tou xay Intersection	10.60	16 45 37	S1	16 45 37	16 45 57										0.70	57	37.5	
7	Lao-Viet bank Intersection	11.20	16 47 6	S1	16 47 6	16 48 18	S1	16 48 46	16 50 19							0.60	89	24.3	
8	Post office Intersection	11.70	16 51 19	S1	16 51 19	16 52 49										0.50	263	7.1	
9	Si sa khet Intersection	11.90	16 52 29													0.20	130	5.5	
10	Ho kham	12.15	16 54 0													0.25	31	29.0	
	Total															12.15	1,509	28.99	

Note: Symbols of Delay LT - Left Turns, RT - Right Turns, PED - Pedestrians, PC - Parked Cars, BP - Bus Loading or unloading
S1 - Traffic Signals, S2 - Traffic Enforcer, Dp - Double Parking, SS - Stop Sign, T - General Congestion, OT - Others

Result of Travel Speed Survey : Route TS2

Morning Peak

Direction From: SI KHAY JUNCTION
Hour: 7:05:00 Date: 2007/10/5

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Si khay Junction	0.00	7 5 0																
2	Pak pa Sak Intersection	4.40	7 16 15	S1	7 16 15	7 17 5										4.40	675	23.5	
3	In pheng Intersection	4.80	7 17 46	S1 & RT	7 17 46	7 18 43										0.40	91	15.8	
4	Pak pa sak Junction	5.15	7 19 30													0.35	104	12.1	
5	That kao Intersection	7.50	7 23 39	S1 & RT	7 23 39	7 24 55										2.35	249	34.0	
6	Road underconstruction	10.30	7 32 24	OT	7 32 24	7 32 37										2.80	525	19.2	
7	km 10 Intersection	15.60	7 46 40	S1	7 46 40	7 47 39										5.30	856	22.3	
9	Infront of Beer Lao com.	18.65	7 52 2													3.05	322	34.1	
10	Dong pho si Junction	25.10	7 58 58													6.45	416	55.8	
Total																	25.10	3,238	27.91

Direction From: DONG PHO SI JUNCTION
Hour: 8:31:38 Date: 2007/10/5

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Dong pho si Junction	0.00	8 11 38																
2	Infront of Beer Lao com.	6.45	8 18 0													6.45	382	60.8	
3	km 10 Intersection	9.40	8 21 2	S1	8 21 2	8 22 16										2.95	182	58.4	
4	Road underconstruction	12.35	8 25 42													2.95	280	37.9	
5	That kao Intersection	17.45	8 41 53	S1	8 41 53	8 42 3										5.10	971	18.9	
6	Si sa ket Intersection	18.95	8 44 40													1.50	167	32.3	
7	That dam Intersection	19.15	8 45 8													0.20	28	25.1	
8	Si hom Intersection	19.95	8 47 11	S1	8 47 11	8 47 56										0.80	113	25.5	
9	Road underconstruction	21.60	8 50 51	OT	8 50 51	8 51 1										1.65	230	25.8	
10	T2 Junction	23.35	8 55 48	S1	8 55 48	8 56 47										1.75	297	21.2	
11	Si khay Junction	25.00	9 0 30													1.65	282	21.1	
Total																	25.00	2,932	30.70

Noon

Direction From: SIKHAI JUNCTION
Hour: 11:00:00 Date: 2007/10/5

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Si khay Junction	0.00	11 0 0																
2	Road underconstruction	2.55	11 6 13	T	11 6 13	11 6 45										2.55	373	24.6	
3	Pak pa Sak Intersection	4.45	11 11 39													1.90	326	21.0	
4	In pheng Intersection	4.80	11 12 30													0.35	51	24.7	
5	That kao Intersection	7.50	11 18 27	S1 & RT	11 18 27	11 20 3										2.70	357	27.2	
6	Road underconstruction	10.65	11 27 43	T	11 27 43	11 29 5										3.15	556	20.4	
7	km 10 Intersection	15.60	11 37 28	S1	11 37 28	11 38 17										4.95	585	30.5	
8	Infront of Beer Lao com.	18.60	11 42 49													3.00	321	33.6	
9	Dong pho si Junction	25.10	11 49 9													6.50	380	61.6	
Total																	25.10	2,949	30.64

Direction From: DONG PHO SI JUNCTION
Hour: 11:55:00 Date: 2007/10/5

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Dong pho si Junction	0.00	11 55 0																
2	Infront of Beer Lao com.	6.45	12 1 31													6.45	391	59.4	
3	km 10 Intersection	9.40	12 5 18	S1	12 5 18	12 6 10										2.95	227	46.8	
4	Road underconstruction	16.45	12 21 1	OT	12 21 1	12 21 16										7.05	943	26.9	
5	That kao Intersection	17.45	12 24 4	S1	12 24 4	12 24 58										1.00	183	19.7	
6	Si sa ket Intersection	18.95	12 27 13	S1	12 27 13	12 27 28										1.50	189	28.6	
7	That dam Intersection	19.15	12 27 49	S1	12 27 49	12 28 8										0.20	36	20.0	
8	Si hom Intersection	19.95	12 29 30	S1	12 29 30	12 30 57										0.80	101	28.5	
9	Road underconstruction	23.10	12 36 39	OT	12 36 39	12 36 45										3.15	429	26.4	
10	T2 Junction	23.35	12 37 36	S1	12 37 36	12 38 3										0.25	57	15.8	
11	Si khay Junction	25.00	12 42 38													1.65	302	19.7	
Total																	25.00	2,858	31.49

Evening Peak

Direction From: SIKHAI JUNCTION
Hour: 15:59:28 Date: 2007/10/5

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Si khay Junction	0.00	15 59 28																
2	Pak pa Sak Intersection	4.40	16 10 38	S1	16 10 38	16 10 59										4.40	670	23.6	
3	In pheng Intersection	4.75	16 11 42	RT	16 11 42	16 13 13										0.35	64	19.7	
4	Pak pa sak Junction	5.15	16 14 0	LT	16 14 0	16 14 11										0.40	138	10.4	
5	Tathkao Intersection	7.45	16 18 43	S1	16 18 43	16 19 33										2.30	283	29.3	
6	On the way	12.00	16 32 18	T	16 32 18	16 33 12										4.55	815	20.1	
7	km 10 Intersection	15.55	16 40 10	S1	16 40 10	16 41 15										3.55	472	27.1	
8	Salakham crossing	15.80	16 41 56	OT	16 41 56	16 42 7										0.25	106	8.5	
9	Road underconstruction	15.95	16 42 55	OT	16 42 55	16 43 14										0.15	59	9.2	
10	Dong pho si Junction	25.10	16 54 7													9.15	672	49.0	
Total																	25.10	3,279	27.56

Direction From: FRIENDSHIP BRIDGE
Hour: 17:00:00 AM Date: 2007/10/5

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Dong pho si Junction	0.00	17 0 0																
2	Infront of Beer Lao com.	6.45	17 6 35													6.45	395	58.8	
3	km 10 Intersection	9.40	17 10 20	S1	17 10 20	17 10 50										2.95	225	47.2	
4	Road underconstruction	12.35	17 14 38													2.95	258	41.2	
5	Tathkao Intersection	17.50	17 30 17													5.15	939	19.1	
6	Sisaket Intersection	18.95	17 32 40	S1	17 32 40	17 32 57										1.45	143	36.5	
7	Tathdam Intersection	19.15	17 33 11	S1	17 33 11	17 33 24										0.20	31	23.2	
8	Si hom Intersection	19.95	17 34 45	S1	17 34 45	17 35 39										0.80	94	30.6	
9	Road underconstruction	21.55	17 38 37	OT	17 38 37	17 38 51										1.60	232	24.8	
10	Road underconstruction	21.85	17 39 58	OT	17 39 58	17 41 47										0.30	81	13.3	
11	T2 Junction	23.35	17 45 0													1.50	302	17.9	
12	Si khay Junction	25.00	17 48 23													1.65	203	29.3	
Total																	25.00	2,903	31.00

Note: Symbols of Delay
LT- Left Turns, RT- Right Turns, PED - Pedestrians, PC - Parked Cars, BP - Bus Loading or unloading
S1 - Traffic Signals, S2 - Traffic Enforcer, Do - Double Parking, SS - Stop Sign, T - General Congestion, OT - Others

Result of Travel Speed Survey : Route TS3

Morning Peak

Direction From: HONG XENG BRIDGE
Hour: 7:25:00

Date: 15/5/2007

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Hong xeng Bridge	0.00	7 25 0																
2	Thaloung Intersection	1.30	7 26 51	S1	7 26 51	7 27 3										1.30	111	42.2	
3	Phonthan Junction	3.15	7 29 26	S2	7 29 26	7 30 19										1.85	155	43.0	
4	Settha hospital	5.55	7 33 10													2.40	224	38.6	
5	km 10 Intersection	9.80	7 38 29													4.25	319	48.0	
Total																9.80	809	43.61	

Direction From: KM 10 INTERSECTION
Hour: 7:39:26

Date: 15/5/2007

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	km 10 Intersection	0.00	7 39 26																
2	Settha hospital	4.20	7 45 5													4.20	339	44.6	
3	Phonthan Junction	6.60	7 48 24	S2	7 48 24	7 48 39										2.40	199	43.4	
4	Thaloung Inters.	8.50	7 51 22	S2	7 51 22	7 52 9										1.90	178	38.4	
5	Hong xeng Bridge	9.80	7 54 39													1.30	197	23.8	
Total																9.80	913	38.64	

Noon

Direction From: HONG XENG BRIDGE
Hour: 11:02:00

Date: 15/5/2007

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Hong xeng Bridge	0.00	11 2 0																
2	Thaloung Inters.	1.30	11 3 47	S2	11 3 47	11 4 24										1.30	107	43.7	
3	Phonthan Junction	3.15	11 6 45	S2	11 6 45	11 7 15										1.85	178	37.4	
4	Settha hospital	5.60	11 10 19													2.45	214	41.2	
5	km 10 Intersection	9.80	11 15 59													4.20	340	44.5	
Total																9.80	839	42.05	

Direction From: KM 10 INTERSECTION
Hour: 11:16:37

Date: 15/5/2007

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	km 10 Intersection	0.00	11 16 37																
2	Settha hospital	4.25	11 22 0													4.25	323	47.4	
3	Phonthan Junction	6.60	11 26 20													2.35	260	32.5	
4	Thaloung Inters.	8.50	11 35 57	S2	11 26 20	11 26 57										1.90	577	11.9	
5	Hongxeng Bridge	9.80	11 38 48													1.30	171	27.4	
Total																9.80	1,331	26.51	

Evening Peak

Direction From: HONG XENG BRIDGE
Hour: 16:05:54

Date: 15/5/2007

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Hong xeng Bridge	0.00	16 5 54																
2	Thaloung Inters.	1.30	16 8 28	S2	16 8 28	16 8 50										1.30	154	30.4	
3	Phonthan Junction	3.15	16 12 15	S2	16 12 15	16 13 5										1.80	227	28.5	
4	Settha hospital	5.55	16 16 48													2.40	273	31.6	
5	km 10 Intersection	9.80	16 23 26													4.30	398	38.9	
Total																9.80	1,052	33.54	

Direction From: KM 10 INTERSECTION
Hour: 16:24:38

Date: 15/5/2007

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	km 10 Intersection	0.00	16 24 38																
2	Settha hospital	4.20	16 30 49													4.20	371	40.8	
3	Phonthan Junction	6.60	16 34 43	S2	16 34 43	16 35 14										2.40	234	36.9	
4	Thaloung Inters.	8.45	16 38 42	S2	16 38 42	16 39 42										1.85	239	27.9	
5	Hong xeng Bridge	9.80	16 42 51													1.35	249	19.5	
Total																9.80	1,093	32.28	

Note: Symbols of Delay

LT - Left Turns, RT - Right Turns, PED - Pedestrians, PC - Parked Cars, BP - Bus Loading or unloading
S1 - Traffic Signals, S2 - Traffic Enforcer, Dp - Double Parking, SS - Stop Sign, T - General Congestion, OT - Others

Result of Travel Speed Survey : Route TS4

Morning Peak

Direction From: DONG DOK JUNCTION
Hour: 7:10:00 Date: 2007/5/16

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Dongdok junction	0.00	7 10 0																
2	Phon sa vanh School Junc.	1.45	7 12 3													1.45	123	42.4	
3	Dong dok University Junc.	1.65	7 12 20	S2	7 29 26	7 30 19										0.20	17	42.4	
4	Than mi xay Intersection	2.15	7 13 9	S1	7 13 9	7 13 28										0.50	49	36.7	
5	Caltex Gas station	9.40	7 22 39													7.25	570	45.8	
6	Si keuth Junction	10.50	7 24 6													1.10	87	45.5	
Total																10.50	846	44.68	

Direction From: SI KEUTH JUNCTION
Hour: 7:25:17 Date: 2007/5/16

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Si keuth Junction	0.00	7 25 17																
2	Caltex Gas station	1.10	7 27 7													1.10	110	36.0	
3	Than mi xay Intersection	8.30	7 35 57	S1	7 35 57	7 36 44										7.20	530	48.9	
4	Dong dok University Junc.	8.80	7 37 51													0.50	114	15.8	
5	Phon sa vanh School Junc.	9.05	7 38 14													0.25	23	39.1	
6	Dong dok junction	10.50	7 40 37													1.45	143	36.5	
Total																10.50	920	41.09	

Noon

Direction From: DONG DOK JUNCTION
Hour: 11:04:06 Date: 2007/5/16

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Dong dok junction	0.00	11 4 6																
2	Phon sa vanh School Junc.	1.45	11 7 12													1.45	186	28.1	
3	Dong dok University Junc.	1.65	11 7 34													0.20	22	32.7	
4	Than mi xay Intersection	2.15	11 8 16	S1	11 8 16	11 8 38										0.50	42	42.9	
5	Caltex Gas station	9.40	11 17 5													7.25	529	49.3	
6	Si keuth Junction	10.50	11 19 14													1.10	129	30.7	
Total																10.50	908	41.63	

Direction From: SI KEUTH JUNCTION
Hour: 11:20:00 Date: 2007/5/16

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Si keuth Junction	0.00	11 20 0																
2	Caltex Gas station	1.10	11 21 10													1.10	70	56.6	
3	Than mi xay Intersection	8.30	11 29 58	S1	11 29 58	11 30 16										7.20	528	49.1	
4	Dong dok University Junc.	8.80	11 31 0													0.50	62	29.0	
5	Phon sa vanh School Junc.	9.05	11 31 20													0.25	20	45.0	
6	Dong dok junction	10.50	11 33 34													1.45	134	39.0	
Total																10.50	814	46.44	

Evening Peak

Direction From: DONG DOK JUNCTION
Hour: 16:08:48 AM Date: 2007/5/16

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Dong dok junction	0.00	16 8 48																
2	Phon sa vanh School Junc.	1.45	16 10 9													1.45	81	64.4	
3	Dong dok University Junc.	1.65	16 11 11	S1	16 11 11	16 11 20										0.20	62	11.6	
4	Than mi xay Intersection	2.15	16 12 19	S1	16 12 19	16 12 40										0.50	68	26.5	
5	Caltex Gas station	9.40	16 21 50													7.25	571	45.7	
6	Si keuth Junction	10.50	16 23 23													1.10	93	42.6	
Total																10.50	875	43.20	

Direction From: SI KEUTH JUNCTION
Hour: 16:29:05 AM Date: 2007/5/16

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Si keuth Junction	0.00	16 29 5																
2	Caltex Gas station	1.10	16 30 30													1.10	85	46.6	
3	Than mi xay Intersection	8.30	16 40 9	S1	16 40 9	16 40 43										7.20	579	44.8	
4	Dong dok University Junc.	8.80	16 41 48													0.50	99	18.2	
5	Phon sa vanh School Junc.	9.05	16 42 52													0.25	64	14.1	
6	Dong dok junction	10.50	16 45 7													1.45	135	38.7	
Total																10.50	962	39.29	

Note: Symbols of Delay LT - Left Turns, RT - Right Turns, PED - Pedestrians, PC - Parked Cars, BP - Bus Loading or unloading
S1 - Traffic Signals, S2 - Traffic Enforcer, Dp - Double Parking, SS - Stop Sign, T - General Congestion, OT - Others

Result of Travel Speed Survey : Route TS5

Morning Peak

Direction From: BAN AKAD JUNCTION
Hour: 7:10:00
Date: 2007/5/17

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Ban Akad Junction	0.00	7 10 0																
2	Nong duang Intersection	2.65	7 14 22	S1	7 14 22	7 15 35										2.65	262	36.4	
3	Khousa luang Intersection	3.10	7 16 30	S1	7 16 30	7 17 18										0.45	128	12.7	
4	Thong kham Inters.	3.70	7 18 21	S1	7 18 21	7 19 9										0.60	111	19.5	
5	Dong mieng Intersection	3.95	7 20 1	S1	7 20 1	7 20 35										0.25	100	9.0	
6	Sisavard Intersection	4.60	7 22 15	S1	7 22 15	7 23 13										0.65	134	17.5	
7	Si boon heuang Inters.	5.10	7 24 7	S1	7 24 7	7 24 35										0.50	112	16.1	
8	Phone sa-ad junction	5.50	7 25 23													0.40	76	18.9	
	Total															5.50	923	21.45	

Direction From: PHONE SA-AD JUNCTION
Hour: 7:27:37
Date: 2007/5/17

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Phone sa-ad junction	0.00	7 27 37																
2	Si boon heuang Inters.	0.40	7 28 11	S1	7 28 11	7 28 40										0.40	34	42.4	
3	Si sa vard Intersection	0.90	7 30 0	S1	7 30 0	7 30 25										0.50	109	16.5	
4	Dong mieng Intersection	1.50	7 32 8	S1	7 32 8	7 33 3										0.60	128	16.9	
5	Thong kham Inters.	1.80	7 33 45	S1	7 33 45	7 34 21										0.30	97	11.1	
6	Khousa luang Intersection	2.35	7 35 28	S1	7 35 28	7 35 59										0.55	103	19.2	
7	Nong duang Intersection	2.80	7 36 50	S1	7 36 50	7 37 4										0.45	82	19.8	
8	Ban Akad Junction	5.50	7 42 1													2.70	311	31.3	
	Total															5.50	864	22.92	

Noon

Direction From: BAN AKAD JUNCTION
Hour: 11:05:30
Date: 2007/5/17

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Ban Akad Junction	0.00	11 5 30																
2	Nong duang Intersection	2.65	11 10 46	S1	11 10 46	11 11 35										2.65	316	30.2	
3	Khousa luang Intersection	3.10	11 12 55	S1	11 12 55	11 13 20										0.45	129	12.6	
4	Thong kham Inters.	3.70	11 14 28	S1	11 14 28	11 14 45										0.60	93	23.2	
5	Dong mieng Intersection	3.95	11 15 37													0.25	69	13.0	
6	Sisavard Intersection	4.60	11 16 49	S1	11 16 49	11 17 37										0.65	72	32.5	
7	Si boon heuang Inters.	5.10	11 18 47	S1	11 18 47	11 19 15										0.50	118	15.3	
8	Phone sa-ad junction	5.50	11 20 15													0.40	88	16.4	
	Total															5.50	885	22.37	

Direction From: PHONE SA-AD JUNCTION
Hour: 11:22:23
Date: 2007/5/17

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Phone sa-ad junction	0.00	11 22 23																
2	Si boon heuang Inters.	0.40	11 23 5													0.40	42	34.3	
3	Si sa vard Intersection	0.90	11 24 6	S1	11 24 6	11 24 28										0.50	61	29.5	
4	Dong mieng Intersection	1.50	11 25 44	S1	11 25 44	11 26 3										0.60	98	22.0	
5	Thong kham Inters.	1.80	11 26 51	S1	11 26 51	11 27 39										0.30	67	16.1	
6	Khousa luang Intersection	2.35	11 29 6	S1	11 29 6	11 29 20										0.55	135	14.7	
7	Nong duang Intersection	2.80	11 30 25	S1	11 30 25	11 31 6										0.45	79	20.5	
8	Ban Akad Junction	5.50	11 35 58													2.70	333	29.2	
	Total															5.50	815	24.29	

Evening Peak

Direction From: BAN AKAD JUNCTION
Hour: 16:05:00 AM
Date: 2007/5/17

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Ban Akad Junction	0.00	16 5 0																
2	Nong duang Intersection	2.65	16 10 31	S1	16 10 31	11 11 36										2.65	331	28.8	
3	Khousa luang Intersection	3.10	16 13 23													0.45	172	9.4	
4	Thong kham Inters.	3.70	16 14 53	S1	16 14 53	16 15 8	S1	16 15 17	16 15 28						0.60	90	24.0		
5	Dong mieng Intersection	3.95	16 16 14	S1	16 16 14	16 16 58									0.20	81	8.9		
6	Sisavard Intersection	4.60	16 18 29	S1	16 18 29	16 19 13									0.70	135	18.7		
7	Si boon heuang Inters.	5.10	16 20 16	S1	16 20 16	21 10	S1	16 21 48	16 22 26						0.50	107	16.8		
8	Phone sa-ad junction	5.50	16 23 39													0.40	203	7.1	
	Total															5.50	1,119	17.69	

Direction From: PHONE SA-AD JUNCTION
Hour: 16:25:30 AM
Date: 2007/5/17

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Phone sa-ad junction	0.00	16 25 30																
2	Si boon heuang Inters.	0.40	16 26 2	S1	16 26 2	16 27 18										0.40	32	45.0	
3	Si sa vard Intersection	0.90	16 28 33	S1	16 28 33	16 29 30										0.50	151	11.9	
4	On the way	1.10	16 30 5	T	16 30 5	16 30 13									0.20	92	7.8		
5	Dong mieng Intersection	1.50	16 31 20	S1	16 31 20	16 32 16									0.40	75	19.2		
6	Thong kham Inters.	1.80	16 32 16	S1	16 32 16	16 33 9									0.30	56	19.3		
7	On the way	1.90	16 33 40	T	16 33 40	16 33 50									0.10	84	4.3		
8	Khousa luang Intersection	2.35	16 34 41	S1	16 34 41	16 35 14									0.45	61	26.6		
9	On the way	2.65	16 36 39	T	16 36 39	16 36 49									0.30	118	9.2		
10	Nong duang Intersection	2.80	16 37 18	S1	16 37 18	16 38 25									0.15	39	13.8		
11	Ban Akad Junction	5.50	16 43 10													2.70	352	27.6	
	Total															5.50	1,060	18.68	

Note: Symbols of Delay

LT - Left Turns, RT - Right Turns, PED - Pedestrians, PC - Parked Cars, BP - Bus Loading or unloading
S1 - Traffic Signals, S2 - Traffic Enforcer, Dp - Double Parking, SS - Stop Sign, T - General Congestion, OT - Others

Result of Travel Speed Survey : Route TS6

Morning Peak

Direction From: KHOU VIENG ROUNDABOUT
Hour: 7:00:00

Date: 2007/5/22

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Khou vieng Roundabout	0.00	7 0 0																
2	That kao Intersection	0.35	7 0 42	S1	7 0 42	7 1 15										0.35	42	30.0	
3	Ma ho sot Junction	1.40	7 2 52													1.05	130	29.1	
4	Vat chan Junction	2.30	7 4 57													0.90	125	25.9	
5	Pak pa sak Junction	2.60	7 5 41													0.30	44	24.5	
6	Pak pa sak Intersection	2.85	7 6 2	S1	7 6 2	7 6 16										0.25	21	42.9	
7	Si hom Junction	3.10	7 6 52													0.25	50	18.0	
Total																3.10	412	27.09	

Direction From: SI HOM JUNCTION

Hour: 7:18:00

Date: 2007/5/22

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Si hom Junction	0.00	7 18 0																
2	Pak pa sak Intersection	0.15	7 18 10	S1	7 18 10	7 18 25										0.15	10	54.0	
3	Pak pa sak Junction	0.45	7 19 0													0.30	50	21.6	
4	Vat chan Junction	0.75	7 19 38													0.30	38	28.4	
5	Ma ho sot Junction	1.65	7 21 17													0.90	99	32.7	
6	That kao Intersection	2.70	7 23 21	S1	7 23 21	7 24 6										1.05	124	30.5	
7	Khou vieng Roundabout	3.10	7 25 6													0.40	105	13.7	
Total																3.10	426	26.20	

Noon

Direction From: KHOU VIENG ROUNDABOUT

Hour: 11:14:50

Date: 2007/5/22

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Khou vieng Roundabout	0.00	11 14 50																
2	That kao Intersection	0.35	11 15 33	S1	11 15 33	11 15 59										0.35	43	29.3	
3	Ma ho sot Junction	1.45	11 18 18													1.10	165	24.0	
4	Vat chan Junction	2.30	11 20 45													0.85	147	20.8	
5	Pak pa sak Junction	2.60	11 21 45													0.30	60	18.0	
6	Pak pa sak Intersection	2.90	11 22 15	S1	11 22 15	11 22 45										0.30	30	36.0	
7	Si hom Junction	3.10	11 23 22													0.20	67	10.7	
Total																3.10	512	21.80	

Direction From: SI HOM JUNCTION

Hour: 11:25:00

Date: 2007/5/22

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Si hom Junction	0.00	11 25 0																
2	Pak pa sak Intersection	0.15	11 25 26													0.15	26	20.8	
3	Pak pa sak Junction	0.45	11 25 59													0.30	33	32.7	
4	Vat chan Junction	0.75	11 26 35													0.30	36	30.0	
5	On the way	0.85	11 27 4	T	11 27 4	11 27 16										0.10	29	12.4	
6	Ma ho sot Junction	1.65	11 29 18													0.80	134	21.5	
7	That kao Intersection	2.70	11 31 43	S1	11 31 43	11 32 35										1.05	145	26.1	
8	Khou vieng Roundabout	3.10	11 33 33													0.40	110	13.1	
Total																3.10	513	21.75	

Evening Peak

Direction From: KHOU VIENG ROUNDABOUT

Hour: 16:19:32 AM

Date: 2007/5/22

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Khou vieng Roundabout	0.00	16 19 32																
2	That kao Intersection	0.30	16 20 21	S1	16 20 21	16 20 53										0.30	49	22.0	
3	Ma ho sot Junction	1.40	16 23 41	T	16 23 41	16 24 19										1.10	200	19.8	
4	Vat chan Junction	2.30	16 26 0													0.90	139	23.3	
5	Pak pa sak Junction	2.60	16 26 59													0.30	59	18.3	
6	Pak pa sak Intersection	2.85	16 27 32	S1	16 27 32	16 28 7										0.25	33	27.3	
7	Si hom Junction	3.10	16 28 45													0.25	73	12.3	
Total																3.10	553	20.18	

Direction From: SI HOM JUNCTION

Hour: 16:30:00 AM

Date: 2007/5/22

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Si hom Junction	0.00	16 30 0																
2	Pak pa sak Intersection	0.15	16 30 21													0.15	21	25.7	
3	Pak pa sak Junction	0.45	16 30 59													0.30	38	28.4	
4	Vat chan Junction	0.75	16 31 34													0.30	35	30.9	
5	Ma ho sot Junction	1.65	16 33 30													0.90	116	27.9	
6	On the way	2.55	16 35 24	T	16 35 24	16 37 48										0.90	114	28.4	
7	That kao Intersection	2.70	16 37 57	S1	16 37 57	16 39 15										0.15	153	3.5	
8	Khou vieng Roundabout	3.10	16 40 46													0.40	169	8.5	
Total																3.10	646	17.28	

Note: Symbols of Delay

LT - Left Turns, RT - Right Turns, PED - Pedestrians, PC - Parked Cars, BP - Bus Loading or unloading
S1 - Traffic Signals, S2 - Traffic Enforcer, DP - Double Parking, SS - Stop Sign, T - General Congestion, OT - Others

Result of Travel Speed Survey : Route TS7

Morning Peak

 Direction From: DONGPHOSI JUNCTION
 Hour: 7:07-09

Date: 2007/5/22

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Dong pho si junction	0.00	7 7 9																
2	Dong pho si primary school	0.65	7 8 33													0.65	84	27.9	
3	Railway	1.25	7 9 43													0.60	70	30.9	
4	Pets crossing	4.40	7 16 40	T	7 16 40	7 16 48										3.15	417	27.2	
5	Xiang da junction	7.50	7 21 31													3.10	291	38.4	
6	Na khouay junction	10.40	7 25 24													2.90	233	44.8	
7	Non khor junction	12.00	7 28 24													1.60	180	32.0	
8	Non sa vang junction	12.40	7 29 10													0.40	46	31.3	
9	Xam khae junction	13.80	7 32 17													1.40	187	27.0	
10	Junction	14.50	7 33 34													0.70	77	32.7	
11	Nong nieng junction	15.30	7 35 34													0.80	120	24.0	
12	On the way	15.75	7 36 15	T	7 36 15	7 36 39										0.45	41	39.5	
13	Nongnieng Intersection	16.20	7 37 41													0.45	86	18.8	
Total																	16.20	1.832	31.83

Direction From: NONGNIENG INTERSECTION

Hour: 7:42-25

Date: 2007/5/22

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Nong nieng Intersection	0.00	7 42 25																
2	Nong nieng junction	0.90	7 44 2													0.90	97	33.4	
3	Junction	1.70	7 45 22													0.80	80	36.0	
4	Xam khae junction	2.40	7 46 55													0.70	93	27.1	
5	None sa vang junction	3.80	7 50 33													1.40	218	23.1	
6	Non khor junction	4.20	7 51 28													0.40	55	26.2	
7	Na khouay junction	5.80	7 54 3													1.60	155	37.2	
8	Xiang da junction	8.70	7 57 52													2.90	229	45.6	
9	Railway	14.25	8 7 48													6.25	596	37.8	
10	Dong pho si primary school	15.55	8 8 35													0.60	47	46.0	
11	Dong pho si junction	16.20	8 10 0													0.65	85	27.5	
Total																	16.20	1.655	35.24

NOON

Direction From: DONGPHOSI JUNCTION

Hour: 11:03-00

Date: 2007/5/22

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Dong pho si junction	0.00	11 3 0																
2	Dong pho si primary school	0.65	11 4 2													0.65	62	37.7	
3	Railway	1.25	11 4 50													0.60	48	45.0	
4	Xiang da junction	7.50	11 15 43													6.25	653	34.5	
5	Truck crossing	9.10	11 17 40	T	11 17 40	11 17 49										1.60	117	49.2	
6	Na khouay junction	10.40	11 19 12													1.30	92	50.9	
7	Non khor junction	12.00	11 21 10													1.60	118	48.8	
8	None sa vang junction	12.40	11 21 41													0.40	31	46.5	
9	Xam khae junction	13.80	11 24 15													1.40	154	32.7	
10	Junction	14.50	11 25 10													0.70	55	45.8	
11	Nong nieng junction	15.30	11 26 20													0.80	70	41.1	
12	Nong nieng Intersection	16.20	11 28 17													0.90	117	27.7	
Total																	16.20	1.517	38.44

Direction From: NONGNIENG JUNCTION

Hour: 11:29-10

Date: 2007/5/22

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Nongnieng Intersection	0.00	11 29 10																
2	Nong nieng junction	0.90	11 30 45													0.90	95	34.1	
3	Junction	1.70	11 31 51													0.80	66	43.6	
4	Xam khae junction	2.40	11 32 52													0.70	61	41.3	
5	On the way	3.40	11 34 28	T & LT	11 34 28	11 34 40										1.00	96	37.5	
6	Non sa vang junction	3.80	11 35 33													0.40	65	22.2	
7	Non khor junction	4.20	11 36 21													0.40	48	30.0	
8	Na khouay junction	5.80	11 38 35													1.60	134	43.0	
9	Xiang da junction	8.70	11 42 7													2.90	212	49.2	
10	Railway	14.95	11 52 28													6.25	621	36.2	
11	Dong pho si primary school	15.55	11 53 22													0.60	54	40.0	
12	Dong pho si junction	16.20	11 54 22													0.65	60	39.0	
Total																	16.20	1.512	38.57

Evening Peak

Direction From: DONGPHOSI JUNCTION

Hour: 16:03-44

Date: 2007/5/22

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Dong pho si junction	0.00	16 3 44																
2	Dong pho si primary school	0.65	16 4 50													0.65	66	35.5	
3	Railway	1.25	16 5 43													0.60	53	40.8	
4	Xiang da junction	7.50	16 16 9													6.25	626	35.9	
5	Na khouay junction	10.40	16 20 5													2.90	236	44.2	
6	Non khor junction	12.00	16 22 31													1.60	146	39.5	
7	Non sa vang junction	12.40	16 23 7													0.40	36	40.0	
8	Xam khae junction	13.80	16 26 17													1.40	190	26.5	
9	Junction	14.50	16 27 15													0.70	58	43.4	
10	Nong nieng junction	15.30	16 28 22													0.80	67	43.0	
11	Nong nieng Intersection	16.20	16 29 52													0.90	90	36.0	
Total																	16.20	1.568	37.19

Direction From: NONGNIENG INTERSECTION

Hour: 16:31-50

Date: 2007/5/22

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Nong nieng Intersection	0.00	16 31 50																
2	Nong nieng junction	0.90	16 33 30													0.90	100	32.4	
3	Junction	1.70	16 34 45													0.80	75	38.4	
4	Xam khae junction	2.40	16 35 46													0.70	61	41.3	
5	Non sa vang junction	3.75	16 38 56													1.35	190	25.6	
6	Non khor junction	4.20	16 39 52													0.45	56	28.9	
7	Na khouay junction	5.80	16 42 10													1.60	138	41.7	
8	Pets crossing	7.80	16 44 51	T	16 44 51	16 45 1										2.00	161	44.7	
9	Xiang da junction	8.70	16 46 0													0.90	69	47.0	
10	Railway	14.90	16 55 21													6.20	561	39.8	
11	Dong pho si primary school	15.55	16 56 9													0.65	48	48.8	
12	Dong pho si junction	16.20	16 57 33													0.65	84	27.9	
Total																	16.20	1.543	37.80

Note: Symbols of Delay

 LT - Left Turns, RT - Right Turns, PED - Pedestrians, PC - Parked Cars, BP - Bus Loading or unloading
 S1 - Traffic Signals, S2 - Traffic Enforcer, DP - Double Parking, SS - Stop Sign, T - General Congestion, OT - Others

Result of Travel Speed Survey : Route TS8

Morning Peak

Direction From: JUNCTION INFRONT OF DONGDOK UNIV.

Hour 7:16:46

Date: 2007/5/24

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Dong dok University	0.00	7 16 46																
2	Si vi lay junction	2.40	7 20 34													2.40	228	37.9	
3	Broadcasting station	2.70	7 21 0													0.30	26	41.5	
4	Hotspital 150	3.20	7 22 0													0.50	60	30.0	
5	Phoun tong junction	4.50	7 24 16													1.30	136	34.4	
6	Hong xeng bridge	5.70	7 26 23													1.20	127	34.0	
7	Sa vang junction	6.30	7 27 49													0.60	86	25.1	
8	Sa vang Intersection	6.60	7 28 57													0.30	68	15.9	
Total																6.60	731	32.50	

Direction From: SAVANG INTERSECTION

Hour 7:19:41

Date: 2007/5/24

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Sa vang Intersection	0.00	7 19 41																
2	Sa vang junction	0.30	7 30 30													0.30	49	22.0	
3	On the way	0.40	7 30 54	T	7 30 54	7 31 22										0.10	24	15.0	
4	Hong xeng bridge	0.80	7 32 23													0.40	89	16.2	
5	Phoun tong junction	2.00	7 35 7													1.20	164	26.3	
6	Hotspital 150	3.35	7 38 0													1.35	173	28.1	
7	Broadcasting station	3.90	7 39 28													0.55	88	22.5	
8	Si vi lay junction	4.15	7 40 9													0.25	41	22.0	
9	Dong dok University	6.60	7 45 49													2.45	340	25.9	
Total																6.60	968	24.55	

Noon

Direction From: JUNCTION INFRONT OF DONGDOK UNIV.

Hour 11:02:39

Date: 2007/5/24

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Dong dok University	0.00	11 2 39																
2	Si vi lay junction	2.40	11 7 18													2.40	279	31.0	
3	Broadcasting station	2.70	11 7 44													0.30	26	41.5	
4	Hotspital 150	3.20	11 8 34													0.50	50	36.0	
5	Phoun tong junction	4.50	11 10 59													1.30	145	32.3	
6	Hong xeng bridge	5.70	11 13 16													1.20	137	31.5	
7	Sa vang junction	6.30	11 14 38													0.60	82	26.3	
8	Sa vang Intersection	6.60	11 15 24													0.30	46	23.5	
Total																6.60	765	31.06	

Direction From: SAVANG INTERSECTION

Hour 11:25:29

Date: 2007/5/24

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Sa vang Intersection	0.00	11 25 29																
2	Sa vang junction	0.30	11 26 11													0.30	42	25.7	
3	Hong xeng bridge	0.80	11 27 39													0.50	88	20.5	
4	Phoun tong junction	2.00	11 29 50													1.20	131	33.0	
5	Hotspital 150	3.35	11 32 13													1.35	143	34.0	
6	Broadcasting station	3.90	11 33 37													0.55	84	23.6	
7	Si vi lay junction	4.15	11 34 8													0.25	31	29.0	
8	On the way	4.50	11 34 50	T	11 34 50	11 34 59										0.35	42	30.0	
9	Dong dok University	6.60	11 39 5													2.10	255	29.6	
Total																6.60	816	29.12	

Evening Peak

Direction From: JUNCTION INFRONT OF DONGDOK UNIV.

Hour 16:08:04

Date: 2007/5/24

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Dong dok University	0.00	16 8 4																
2	Si vi lay junction	2.40	16 12 54													2.40	290	29.8	
3	Broadcasting station	2.70	16 13 28													0.30	34	31.8	
4	Hotspital 150	3.20	16 14 50													0.50	82	22.0	
5	Phoun tong junction	4.50	16 16 56													1.30	126	37.1	
6	Hong xeng bridge	5.70	16 19 12													1.20	136	31.8	
7	Sa vang junction	6.30	16 20 43													0.60	91	23.7	
8	Underconstruction	6.35	16 20 50	T	16 20 50	16 21 18										0.05	7	25.7	
9	Sa vang Intersection	6.60	16 21 45													0.25	55	16.4	
Total																6.60	821	28.94	

Direction From: SAVANG INTERSECTION

Hour 16:25:00

Date: 2007/5/24

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Sa vang Intersection	0.00	16 25 0																
2	Sa vang junction	0.30	16 25 50													0.30	50	21.6	
3	Hong xeng bridge	0.80	16 26 55													0.50	65	27.7	
4	On the way	1.80	16 28 40	T	16 28 40	16 28 49										1.00	105	34.3	
5	Phoun tong junction	2.00	16 29 40													0.20	60	12.0	
6	Hotspital 150	3.35	16 32 3													1.35	143	34.0	
7	Broadcasting station	3.90	16 33 10													0.55	67	29.6	
8	Si vi lay junction	4.15	16 33 45													0.25	35	25.7	
9	Dong dok University	6.60	16 38 53													2.45	308	28.6	
Total																6.60	833	28.52	

Note: Symbols of Delay

LT - Left Turns, RT - Right Turns, PED - Pedestrians, PC - Parked Cars, BP - Bus Loading or unloading
S1 - Traffic Signals, S2 - Traffic Enforcer, Dp - Double Parking, SS - Stop Sign, T - General Congestion, OT - Others

Result of Travel Speed Survey : Route TS9

Morning Peak

Direction From: TAN MI SAY INTERSECTION
Hour: 7:14:20 Date: 2007/5/29

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Tan mi say intersection	0.00	7 14 20																
2	Caltex gas station	1.65	7 17 32													1.65	192	30.9	
3	Houay hong market	2.50	7 18 39													0.85	67	45.7	
4	Shell gas station	3.80	7 21 18													1.30	159	29.4	
5	Hong xeng bridge	4.95	7 23 36													1.15	138	30.0	
6	Sa vang intersection	6.30	7 25 40													1.35	124	39.2	
7	Thong kan kham intersection	6.80	7 26 30	S1	7 26 30	7 27 34										0.50	50	36.0	
8	Anou intersection	7.30	7 28 50													0.50	140	12.9	
	Total															7.30	870	30.21	

Direction From: ANOU INTERSECTION
Hour: 7:31:00 Date: 2007/5/29

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Anou intersection	0.00	7 31 00																
2	Thong kan kham intersection	0.50	7 32 00	S1	7 32 00	7 32 41										0.50	60	30.0	
3	Sa vang intersection	1.00	7 33 52													0.50	112	16.1	
4	Hong xeng bridge	2.30	7 36 02													1.30	130	36.0	
5	Shell gas station	3.80	7 37 46													1.20	104	41.5	
6	Houay hong market	4.80	7 40 50													1.30	184	25.4	
7	Caltex gas station	5.40	7 41 56													0.80	66	43.6	
8	Tan mi say intersection	7.30	7 45 58													1.70	242	25.3	
	Total															7.30	898	29.27	

Morning Peak

Direction From: TAN MI SAY INTERSECTION
Hour: 11:09:00 Date: 2007/5/29

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Tan mi say intersection	0.00	11 9 0																
2	Caltex gas station	1.65	11 11 32													1.65	152	39.1	
3	Houay hong market	2.50	11 12 43													0.85	71	43.1	
4	Shell gas station	3.80	11 14 52													1.30	129	36.3	
5	Hong xeng bridge	4.95	11 16 42													1.15	110	37.6	
6	Sa vang intersection	6.30	11 18 56													1.35	134	36.3	
7	Thong kan kham intersection	6.80	11 19 45	S1	11 19 45	11 20 15										0.50	49	36.7	
8	Anou intersection	7.30	11 21 30													0.50	105	17.1	
	Total															7.30	750	35.04	

Direction From: ANOU INTERSECTION
Hour: 11:30:47 Date: 2007/5/29

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Anou intersection	0.00	11 30 47																
2	Thong kan kham intersection	0.50	11 31 49	S1	11 31 49	11 32 9										0.50	62	29.0	
3	Sa vang intersection	1.00	11 32 56													0.50	67	26.9	
4	Hong xeng bridge	2.30	11 34 43													1.30	107	43.7	
5	Shell gas station	3.50	11 36 36													1.20	113	38.2	
6	Houay hong market	4.75	11 39 34													1.25	178	25.3	
7	Caltex gas station	5.30	11 41 0													0.85	86	35.6	
8	Tan mi say intersection	7.30	11 44 40													1.70	220	27.8	
	Total															7.30	833	31.55	

Evening Peak

Direction From: TAN MI SAY INTERSECTION
Hour: 16:10:05 Date: 2007/5/29

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Tan mi say intersection	0.00	16 10 5																
2	Caltex gas station	1.65	16 12 51													1.65	166	35.8	
3	Houay hong market	2.50	16 14 10													0.85	79	38.7	
4	Shell gas station	3.80	16 17 6													1.30	176	26.6	
5	Hong xeng bridge	4.95	16 19 22													1.15	136	30.4	
6	Sa vang intersection	6.30	16 21 38													1.35	136	35.7	
7	Thong kan kham intersection	6.80	16 22 42	S1	16 22 42	16 22 58										0.50	64	28.1	
8	Anou intersection	7.30	16 24 5													0.50	83	21.7	
	Total															7.30	840	31.29	

Direction From: ANOU INTERSECTION
Hour: 16:31:30 Date: 2007/5/29

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Anou intersection	0.00	16 31 30																
2	Thong kan kham intersection	0.50	16 32 40	S1	16 32 40	16 33 48										0.50	70	25.7	
3	Sa vang intersection	1.00	16 34 49													0.50	129	14.0	
4	Hong xeng bridge	2.30	16 37 11													1.30	142	33.0	
5	Shell gas station	3.50	16 39 29													1.20	138	31.3	
6	Houay hong market	4.80	16 42 12													1.30	163	28.7	
7	Caltex gas station	5.30	16 43 40													0.80	88	32.7	
8	Tan mi say intersection	7.30	16 46 48													1.70	188	32.6	
	Total															7.30	918	28.63	

Note: Symbols of Delay

LT - Left Turns, RT - Right Turns, PED - Pedestrians, PC - Parked Cars, BP - Bus Loading or unloading
S1 - Traffic Signals, S2 - Traffic Enforcer, Dp - Double Parking, SS - Stop Sign, T - General Congestion, OT - Others

Result of Travel Speed Survey : Route TS11

Morning Peak

Direction From: MA HO SOT ROAD
Hour 7:15:13

Date: 2007/5/31

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Ma ho sot hospital junction	0.00	7 15 13																
2	Ma ho sot intersection	0.15	7 15 39													0.15	26	20.8	
3	Morning market intersection	0.45	7 16 37	S1	7 16 37	7 17 8										0.30	58	18.6	
4	That foou intersection	0.85	7 17 59	S1	7 17 59	7 18 23										0.40	82	17.6	
5	Na say intersection	1.50	7 19 35													0.65	96	24.4	
6	Na say junction	1.90	7 20 14													0.40	39	36.9	
7	Thatlouang roundabout	2.60	7 21 25													0.70	71	35.5	
8	Thatlouang intersection	3.40	7 22 58													0.80	93	31.0	
9	Thatlouang bridge	4.10	7 24 19													0.70	81	31.1	
10	None sa vang junction	4.50	7 25 10													0.40	51	28.2	
	Total															4.50	597	27.14	

Direction From: NONE SA VANG JUNCTION

Hour 7:32:36

Date: 2007/5/31

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	None sa vang junction	0.00	7 32 36																
2	Thatlouang bridge	0.40	7 33 25													0.40	49	29.4	
3	Thatlouang intersection	1.05	7 34 57													0.65	92	25.4	
4	Thatlouang roundabout	1.80	7 36 44	T	7 36 44	7 36 51										0.75	107	25.2	
5	Na say junction	2.55	7 38 0													0.75	76	35.5	
6	Na say Intersection	2.95	7 38 50													0.40	50	28.8	
7	That foou intersection	3.60	7 40 26	S1	7 40 26	7 41 5										0.65	96	24.4	
8	Morning market intersection	4.00	7 41 48	S1	7 41 48	7 42 7										0.40	82	17.6	
9	Intersection	4.15	7 42 33	T	7 42 33	7 42 49										0.15	45	12.0	
10	Ma ho sot intersection	4.35	7 43 17													0.20	44	16.4	
11	Ma ho sot hospital junction	4.50	7 44 5													0.15	48	11.3	
	Total															4.50	689	23.51	

Noon

Direction From: MA HO SOT ROAD
Hour 11:01:30

Date: 2007/5/31

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Ma ho sot hospital junction	0.00	11 1 30																
2	Ma ho sot intersection	0.15	11 2 14													0.15	44	12.3	
3	Morning market intersection	0.40	11 3 17	S1	11 3 17	11 4 59										0.25	63	14.3	
4	That foou intersection	0.80	11 6 30	S1	11 6 30	11 7 7										0.40	193	7.5	
5	Na say Intersection	1.50	11 8 13													0.70	103	24.5	
6	Na say junction	1.90	11 9 8													0.40	55	26.2	
7	Thatlouang roundabout	2.60	11 10 25													0.70	77	32.7	
8	On the way	3.00	11 10 41	T	11 10 41	11 11 57										0.40	16	90.0	
9	Thatlouang intersection	3.35	11 13 14	S1	11 13 14	11 14 12										0.35	153	8.2	
10	Thatlouang bridge	4.10	11 15 56													0.75	162	16.7	
11	None sa vang junction	4.50	11 17 6													0.40	70	20.6	
	Total															4.50	936	17.31	

Direction From: NONE SA VANG JUNCTION

Hour 11:25:00

Date: 2007/5/31

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	None sa vang junction	0.00	11 25 0																
2	Thatlouang bridge	0.40	11 25 38													0.40	38	37.9	
3	Thatlouang intersection	1.05	11 26 49	S1	11 26 49	11 28 3										0.65	71	33.0	
4	Thatlouang roundabout	1.80	11 30 44													0.75	235	11.5	
5	Na say junction	2.55	11 31 40													0.75	56	48.2	
6	Na say Intersection	2.90	11 32 18	S1	11 32 18	11 33 15										0.35	38	33.2	
7	That foou intersection	3.60	11 34 34	S1	11 34 34	11 35 1										0.70	136	18.5	
8	Morning market intersection	4.00	11 36 0	S1	11 36 0	11 37 7										0.40	86	16.7	
9	Intersection	4.15	11 37 45	T	11 37 45	11 37 49										0.15	105	5.1	
10	Ma ho sot intersection	4.35	11 38 23													0.20	38	18.9	
11	Ma ho sot hospital junction	4.50	11 38 51													0.15	28	19.3	
	Total															4.50	831	19.49	

EVENING

Direction From: MA HO SOT ROAD
Hour 16:05:35

Date: 2007/5/31

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	Ma ho sot hospital junction	0.00	16 5 35																
2	Ma ho sot intersection	0.15	16 5 59													0.15	24	22.5	
3	Morning market intersection	0.40	16 7 6	S1	16 7 6	16 7 59										0.25	67	13.4	
4	That foou intersection	0.85	16 9 9	S1	16 9 9	16 10 12										0.45	123	13.2	
5	Na say intersection	1.50	16 11 35													0.65	146	16.0	
6	Na say junction	1.90	16 12 28													0.40	53	27.2	
7	Thatlouang roundabout	2.60	16 13 45													0.70	77	32.7	
8	Thatlouang intersection	3.35	16 15 44	S1	16 15 44	16 16 41										0.75	119	22.7	
9	Thatlouang bridge	4.10	16 18 42													0.75	178	15.2	
10	None sa vang junction	4.50	16 19 50													0.40	68	21.2	
	Total															4.50	855	18.95	

Direction From: NONE SA VANG JUNCTION

Hour 16:29:35

Date: 2007/5/31

No	Intersection Name (Check Point)	Cumulative Distance (km)	Travel Time (hr:min:sec)	Delay1			Delay2			Delay3			Delay4			Traffic Accident	Sectional Distance (km)	Sectional Time (sec)	Average Speed (km/h)
				Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)	Delay Cause	Stop Time (hr:min:sec)	Start Time (hr:min:sec)				
1	None sa vang junction	0.00	16 29 35																
2	Thatlouang bridge	0.40	16 30 49													0.40	74	19.5	
3	On the way	0.90	16 31 55	T	16 31 55	16 32 6	T	16 32 28	16 32 33							0.50	66	27.3	
4	Thatlouang intersection	1.05	16 32 37													0.15	42	12.9	
5	Thatlouang roundabout	1.80	16 35 16													0.75	159	17.0	
6	Na say junction	2.55	16 36 47													0.75	91	29.7	
7	Na say Intersection	2.95	16 37 41													0.40	54	26.7	
8	That foou intersection	3.60	16 39 10	S1	16 39 10	16 40 24										0.65	89	26.3	
9	Morning market intersection	4.00	16 42 3	S1	16 42 3	16 43 0										0.40	173	8.3	
10	Intersection	4.15	16 43 26	T	16 43 26	16 43 29										0.15	83	6.5	
11	Ma ho sot intersection	4.35	16 43 59													0.20	33	21.8	
12	Ma ho sot hospital junction	4.50	16 44 14													0.15	15	36.0	
	Total															4.50	879	18.43	

Note: Symbols of Delay

LT - Left Turns, RT - Right Turns, PED - Pedestrians, PC - Parked Cars, BP - Bus Loading or unloading
S1 - Traffic Signals, S2 - Traffic Enforcer, Dp - Double Parking, SS - Stop Sign, T - General Congestion, OT - Others

APPENDIX 6

PUBLIC TRANSPORT

6-1	Public Transport Vehicle in Vientiane	A6-1
6-2-1	Vientiane State Bus Company	A6-4
6-2-2	Time Table at Southern Bus Station	A6-7
6-2-3	Allocation and Announcement of Time Schedule by Bus Company	A6-8
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6-4	Time Schedule for Northern Bus Station	A6-15

Public Transport Vehicle in Vientiane

(Mass Transit Vehicle)

(1) Type A: Big Bus for Long Trip

Big sized buses run for medium and long transport for inter-province and neighboring countries. There are luxurious buses (first-class coach called “Vip Bus”) with additional premium fares, air-conditioned and/or upper-decker buses. For Kunming in China, a sleeping bus service is operated. All long trip buses start at the Southern and Northern Bus Stations except for Thailand at the Central Bus Station.



Type A: Long Trip Bus



Long Trip Bus (Vip Bus)



Long Trip Bus (Inside)



Bus for Nongkhai for Thailand at Central Bus Station



International Bus for China (Sleeping Beds)

(2) Type B: Medium Bus for Urban and Medium Trip

A medium sized bus is used for intra-city for urban public transport. Most of buses were provided by Japan Grant aid to the State Bus Company of Vientiane¹ in 1989 and 2002.

¹ Note: Official name is “State Bus Enterprise of Vientiane”, but “State Bus Company” is very popular. The Study uses the popular name for easy public understandings.



Type B: Medium Bus



Type B: Inside of Medium Bus

(3) Type C: Mini Bus for Short Trip and Commuter

This type of bus is a typical city commuter for intra-city and suburbs. Minibuses were provided to State Bus Company of Vientiane by Japan grant aid in 2002.



Type C: Mini Bus

(Paratransit Vehicle)

(1) Type D: Sonteo

A Sonteo is a converted light truck by using a cargo space for passenger seats with a roof. Maximum passengers are 12. Mostly they transport both passengers and freights between urban and rural areas. Designated routes and stations exist for Sonteo. Fares are fixed. All Sonteo must be registered in Sonteo Association in Vientiane.



Type D: Sonteo

(2) Type G: Tuk-tuk & Type H: Jambo

There are two types using three-wheeled vehicles. A Tuk-tuk (Type G) is produced in Thailand by converting it from three-wheeled mini truck. They can carry maximum 8 passengers. They are allowed to park at the registered station. It is used for a short trip. Route is flexible. It carries passengers on feeder roads between bus stations. Fare is fixed but negotiable.



Type G: Tuk-tuk

A Jambo (Type H) is a converted motorbike with attached rear sheets for passengers. The Jambo is a three-wheeler and uses a motorbike engine, which is smaller than Tuk-tuk. Maximum passengers are 6. No route is designated but its parking point is fixed. A fare

depends on the travel distance, but negotiable. The fare is increased in night time. Minimum fare is Kip 5,000 (0.5 US\$ equivalent). Tuk-tuk and Jambo must be registered in Tuk-tuk Association in Vientiane.



Type H: Jambo

(4) Type I: Taxi

A small number of taxis are operated in Vientiane and are registered in Taxi Association of Vientiane. No meter is installed. A fare depends on travel distance. Generally the taxi stations at markets, hotels, embassies, and other important places such as airport and Friendship Bridge terminal.



Type I: Taxi (Morning Market)

(5) Type J: Bike Taxi

There are bike taxi services at the end of bus route in suburban area. The driver puts uniform for distinguishing him from unauthorized driver. Minimum fare is 10,000 kips. In the city center, no bike taxi exists.



Type J: Bike Taxi

(6) Type K: Ferry Boat

At 5km South after the Friendship Bridge on Route No.1, there is a ferry service for Nongkhai in Thailand. There is an office of immigration and costumers. Small traders and passengers uses this services.



Type K: Ferry Boat

Vientiane State Bus Company

Lao People's Democratic Republic
Peace Independence Unity Democracy Prosperity

Vientiane
Department of Communication, Transport, Post and Construction
State Bus Enterprise
1317/SBE

No.

Date: 28 Jul 2006

Brief Report to the Business Improvement Committee,
Prime Minister's Office
19 Jul 2006

1. Background

State Bus Enterprise (SBE) of Vientiane is a 100% state-owned enterprise, its roles and responsibilities to provide social service in the field of urban transport in Vientiane and in some provinces. SBE is under Department of Communication, Transport, Post and Construction (DCTPC) and the Mayor of Vientiane.

- In 1989 – 90 SBE received first batch of donation from the Government of Japan under the Project for the Improvement of Urban Transport in Vientiane, total value is 1,070,000,000 JPY included 50 buses, 32 large buses and 18 medium buses and the constructions of terminal and workshop
- At initial stage, Government leased out to the employees, labors on the monthly, annually basis. Until 20 September 1993 reformation was done to serve following objectives:
 - Fare control by cutting all unnecessary costs in order to maintain passengers' satisfaction and gain more profit. It was therefore Department of Economic and Planning (former name) of Vientiane and DCTPC Passenger Transport Company to manage the business as a state-owned enterprise following the Prime Minister's Office Decree No. 91/PMO dated 5 December 1991.
 - SBE pays government for the renting cost of
 - fixed assets and retain the operating cost for future expansion
- 1999 – 2000 SBE received second batch of donation from the government of Japan for 56 buses and some parts via Non-Project Grant Aid, total value is 269,749,478 JPY
- SBE spent 2,606,800,902 Kip from its savings to purchase additional 28 buses
- 7 August 2002 SBE Board of Management was established in accordance with the Vientiane Governor's Decree No. 1457/VTE and renamed from Vientiane Passenger Transport Company to Vientiane State Bus Enterprise agreed by the Board of Management meeting on 29 August 2002.

2. Organization of the SBE

SBE has totally 304 employees, 16 females (as of June 2006), 20 contracted employees:

- Directors 3 persons
- 4 sectors: accounting, admin-personnel, planning and transport, technical and maintenance

3. Transportation and Financing

3.1 Financing

- 1990 to 2001 SBE has been able to provide services and make profit every year (see attachment)
- 2002 SBE lost 114,423,593 Kip because of the inflation; exchange rate was 218.15 Kip/THB and 9,555 Kip/USD at the beginning of 2002 and 241.75 Kip/THB and 10,720 Kip/USD at the end of 2002
- 2002 SBE moved all the inter-city buses to the Northern Bus Terminal according to the Vientiane governor's Decree No. 2173/VTE dated 24 December 2002 and the Notice of Director of DCTPC No. 2624/DCTPC.VTE dated 27 December 2002
- 2002 government approved new joint venture bus company namely Laody to share the service routes with SBE and dominated on some routes
- 2002 SBE requested government 3 times for the increasing of the fare:
 - 1st Request dated 28 December 2001 and on 31 January 2002 the governor replied asking SBE to maintain the same fare
 - 2nd Request dated 9 July 2002 and on 25 September 2002 the governor approved for increasing bus fare for only intra-city routes
 - 3rd Request dated 4 December 2002 for increasing fare of suburban and inter-city buses and on 7 March 2003 governor approved
- 2003 yielded 188,760,640 Kip of profit and paid the lowest profit tax 214,677,772 Kip
- 2004 lost 120,595,512 Kip and paid the lowest profit tax 241,666,233 Kip
- 2005 lost 1,319,473,024 Kip and paid the lowest profit tax 183,930,792 Kip. The main causes for loss are:
 - Some buses moved from T2 bus terminal to the KM9 Southern bus terminal
 - Fuel price increased 9 times
 - Business operation not according to the plan

3.2 Table of Passengers and Financing

Year	Pax	Total income (Kip)	Total profit (Kip)	Tax (Kip)
1990	2,182,640	440,498,685	7,178,065	132,816,708
1991	2,745,751	784,478,785	138,328,641	268,389,343
1992	2,836,855	900,541,403	94,235,203	272,923,769
1993	2,853,741	915,204,343	35,522,325	161,912,719
1994	2,745,457	1,004,909,546	20,676,790	133,746,925
1995	2,402,459	1,191,669,006	30,958,601	164,395,717
1996	2,658,269	1,409,121,041	42,412,046	189,218,551
1997	3,103,175	1,659,931,240	5,520,947	183,693,847
1998	3,611,895	2,869,439,475	40,016,131	222,834,569
1999	6,676,783	8,082,727,558	348,738,658	2,039,706,248
2000	9,073,961	13,303,455,877	332,358,971	3,427,564,043
2001	9,647,054	17,589,986,263	716,744,254	3,398,714,222
2002	9,146,850	17,668,806,279	- 114,213,593	2,311,535,505
2003	7,716,152	21,469,777,231	188,760,640	2,244,719,030
2004	5,706,703	25,166,615,279	- 120,595,515	2,756,294,006
2005	5,560,903	28,893,079,240	- 1,319,473,024	1,915,996,169
Total	78,668,648	143,350,241,251	2,001,451,272	19,824,460,916

4. Difficulties

1. Classification of management mechanism is still not clear between Social service vs. Business because most of urban transport in other countries often receive subsidies from the government
2. Which government agency should take the leading role ex. International Passenger Transport is under MCTPC
3. Inter-city passenger transport: SBE does not own the station and facing many difficulties:
 - a. Not able to provide smooth connections between SBE terminal and other terminals
 - b. Not able to control the service fare, time table between Vientiane and provinces
 - c. Conflicts on fares, time tables, racing buses which created lot of problems to society especially from private company
4. The management system to control private bus company and terminals are not properly done and lack of consensus ex. DCTPC issues an order for all buses to use the KM9 Southern Bus Terminal starting from 24 January 2005. However, there are many private buses continue to provide services in the city and prolonged until July 2007.
5. Problem of the often increasing fuel prices:
 - a. 2003 fuel price increased 6 times
 - b. 2004 fuel price increased 4 times
 - c. 2005 fuel price increase 9 times; at the beginning of the year 4,865 Kip/liter up to 9th time 6,555 kip/liter
 - d. 2006 fuel price has been increased for 5 times
6. Problem of bank note: in Lao PDR there is not small money so it is difficult to increase the fare in small rate in case of fuel price increased
7. Lack of funding for business expansion and as well as lacking of spare parts for old model buses

5. Proposed solutions

1. Improvement and reformation of the business category; government has to decide between social services or full business. If social service then some subsidies should be made
2. Which agency should SBE should report to ex. MCTPC or Vientiane governor or DCTPC....
3. Government should consider to assist SBE in terms of fare system and expanding the business
4. SBE should have its own terminal or able to manage private bus terminals
5. Seeking for joint venture with any potential partner
6. Avoiding payment of the lowest income tax because even SBE lost but it always pays to tax

Director of the SBE

Sign and Seal

Khamphoun Temerath

Time Table at Southern Bus Station

Lao People Democratic Republic
Peace Independence Democracy Unity Prosperity

Vientiane Municipality No 1651/

Time Schedule of Bus Station at Km 9 (Southern) in 10/2006

No	Destination (Province)	Time Schedule								Price / Person
		1	2	3	4	5	6	7	8	
1	Thakhek	4:00	5:00	6:00	12:00					40,000
2	Lak Xao (Km 20)	5:00	6:00	7:00						50,000
3	Khangkok	4:30								60,000
4	Sekhong	4:30								100,000
5	Attapeu	9:30	17:00							110,000
6	Donekhong	10:30								110,000
7	Veunkham	11:00								110,000
8	Donetalarth	11:30								95,000
9	Saravanh	16:30	19:30							100,000
10	Pakse (normal)	10:00	12:30	13:00	13:30	14:00	14:30	15:15	16:00	85,000
						Gvt. Bus				
11	Pakse (Air Con.2)	5:15	7:15	18:00	19:00	20:00	20:30			110,000
				Gvt. Bus						
12	Pakse (Air Con.1)									130,000
13	Paksan	7:30	11:00	13:30						20,000
		Gvt Bus	Gvt Bus	Gvt Bus						
14	B. Keun									8,000
15	Namthon									30,000

Appendix 6-2-3

Allocation and Announcement of Time Schedule by Bus Company at Southern Bus Terminal

Date	Route	Time leave	Part	Price	Date	Route	Time leave	Part	Price
2006/2/10	Savannakhet	5:30 6:00 6:30 7:00 7:30 8:00 8:30 9:00	Social Chitpasong Company Seansaby Company Gvt Bus Seansaby Company Chitpasong Company Social Seansaby Company	55,000	2006/4/10	Savannakhet	5:30 6:00 6:30 7:00 7:30 8:00 8:30 9:00	Gvt Bus Social Chitpasong Company Seansaby Company Gvt Bus Social Seansaby Company Chitpasong Company	55,000
2006/6/10	Savannakhet	5:30 6:00 6:30 7:00 7:30 8:00 8:30 9:00	Chitpasong Company Gvt Bus Social Chitpasong Company Seansaby Company Gvt Bus Social Seansaby Company	55,000	2006/8/10	Savannakhet	5:30 6:00 6:30 7:00 7:30 8:00 8:30 9:00	Seansaby Company Chitpasong Company Gvt Bus Social Chitpasong Company Seansaby Company Gvt Bus Social	55,000
2006/10/10	Savannakhet	5:30 6:00 6:30 7:00 7:30 8:00 8:30 9:00	Social Seansaby Company Chitpasong Company Gvt Bus Social Chitpasong Company Seansaby Company Gvt Bus	55,000	2006/12/10	Savannakhet	5:30 6:00 6:30 7:00 7:30 8:00 8:30 9:00	Gvt Bus Social Seansaby Company Chitpasong Company Gvt Bus Social Chitpasong Company Seansaby Company	55,000
14/10/06	Savannakhet	5:30 6:00 6:30 7:00 7:30 8:00 8:30 9:00	Seansaby Company Gvt Bus Social Seansabay Company Chitpasong Company Gvt Bus Social Chitpasong Company	55,000	16/10/06	Savannakhet	5:30 6:00 6:30 7:00 7:30 8:00 8:30 9:00	Chitpasong Company Seansaby Company Gvt Bus Social Seansabay Company Chitpasong Company Gvt Bus Social	55,000
18/10/06	Savannakhet	5:30 6:00 6:30	Social Chitpasong Company Seansabay Company	55,000	20/10/06	Savannakhet	5:30 6:00 6:30	Gvt Bus Social Chitpasong Company	55,000

Date	Route	Time leave	Part	Price	Date	Route	Time leave	Part	Price
		7:00 7:30 8:00	Gvt Bus Social Seansabay Company				7:00 7:30 8:00	Seansabay Company Gvt Bus Social	
		8:30 9:00	Chitpasong Company Gvt Bus			8:30 9:00	Seansabay Company Chitpasong Company		
22/10/06	Savannakhet	5:30 6:00 6:30 7:00 7:30 8:00 8:30 9:00	Social Gvt Bus Social Chitpasong Company Seansabay Company Gvt Bus Social Seansabay Company	55,000	24/10/06		5:30 6:00 6:30 7:00 7:30 8:00 8:30 9:00		55,000
26/10/06	Savannakhet	5:30 6:00 6:30 7:00 7:30 8:00 8:30	Social Seansabay Company Chitpasong Company Gvt Bus Social Chitpasong Company Seansabay Company	55,000	28/10/06		5:30 6:00 6:30 7:00 7:30 8:00 8:30	Gvt Bus Social Seansabay Company Chitpasong Company Gvt Bus Social Chitpasong Company	55,000
		9:00	Gvt Bus				9:00	Seansabay Company	
30/10/06	Savannakhet	5:30 6:00 6:30 7:00 7:30 8:00 8:30 9:00	Seansabay Company Gvt Bus Social Seansabay Company Chitpasong Company Gvt Bus Social Chitpasong Company	55,000					

Remark:

1. Pakse (normal) Gvt Bus leave at 13:00,14:00,15:15
2. Pakse (air-con.2) Gvt leave at 18:00
3. Pakse (air-con.2) Simeuang station leave at 7:15,19:30 (leave every day)
4. Pakse (air-con.2) leave at 5:15 Chitpasong company
5. Pakse (air-con.2) leave at 19:00 Social
6. Pakse (air-con.2) leave at 20:00 Chitpasong company
7. Pakse (air-con.2) leave at 20:30 Laody company
8. Pakse (air-con.1) leave at 20:030 Chitpasong company, Thonglypasi, Simeuang station (leave every day)

Time Schedule at Morning Market Bus Station

Lao People Democratic Republic

Peace Independence Democracy Unity Prosperity

Vientiane

No 142/

Time schedule for Bus Station at Khouadin/ Morning Market(Vientiane)

Date: 19.1.07

No.	Destination	Time Schedule										Price Kip / Person	
		1	2	3	4	5	6	7	8	9	10		
1	Thadeua	1	5:35	8:05	10:35	13:05	16:05						
		2	5:50	8:20	10:50	13:20	16:25						
		3	6:05	8:35	11:05	13:35	16:45						
		4	6:20	8:50	11:20	13:50	17:05						
		5	6:35	9:05	11:35	14:05	17:30						4,000
		6	6:50	9:20	11:50	14:25							
		7	7:05	9:35	12:05	14:45							
		8	7:20	9:50	12:20	15:05							
		9	7:35	10:05	12:35	15:25							
		10	7:50	10:20	12:50	15:45							
2	Nongtha	1	6:10	7:40	9:30	11:30	13:40	16:00					
		2	6:40	8:10	10:00	12:00	14:40	16:30					2,000
		3	7:10	8:40	10:30	12:30	15:10	17:20					
3	Phontong	1	6:00	7:30	9:10	11:10	13:05	15:05	17:05				
		2	6:15	7:45	9:25	11:25	13:25	15:25	17:25				
		3	6:30	8:10	9:50	11:50	13:45	15:25					
		4	6:45	8:25	10:05	12:05	14:05	16:05					
		5	7:00	8:40	10:20	12:20	14:25	16:25					
		6	7:15	8:55	10:45	12:45	14:45	16:25					
4	Nonghay	1	7:30	9:30	11:30	13:30	15:30	17:30					3,000
5	Thangon	1	5:50	8:20	10:50	13:20	15:50						
		2	6:15	8:45	11:15	13:45	16:15						
		3	6:40	9:10	11:40	14:10	16:40						4,000
		4	7:05	9:35	12:05	14:35	17:05						
		5	5:50	7:30	10:00	12:30	15:00	17:30					
		6	7:55	10:25	12:55	15:25							
6	Dongkham sang	1	6:30	8:30	10:30	12:30	14:30	16:30					
		2	7:30	9:30	11:30	13:30	15:30	17:30					3,000
7	Noongteng	1	6:15	8:15	10:15	12:30	15:30						
		2	6:50	8:50	10:50	13:30	16:30						3,000
		3	7:25	9:30	11:30	14:30	17:30						
8	Sikerd	1	6:10	8:10	10:10	12:30	14:30	16:30					3,000
		2	7:05	9:05	11:05	13:25	15:25	17:25					

9	Donepamai	1	6:40	7:20	8:00	9:40	11:20	13:00	14:40	16:00	16:40		2,000
		2	6:40	7:20	8:00	9:40	11:20	13:00	14:40	16:00	16:40		
		3	6:10	6:50	7:30	8:10	10:10	11:50	13:30	15:30	16:10	16:50	
10	Thongphong	1	6:00	8:00	10:20	12:30	14:30	16:30					
		2	6:20	8:30	10:50	12:50	15:00	16:50					
		3	6:40	9:00	11:20	13:30	15:30	17:20					
		4	7:00	9:30	11:50	14:00	16:00						
11	Tatthong	1	6:00	8:15	10:35	12:40	14:40	16:35					3,000
		2	6:30	8:45	11:05	13:15	15:10	17:00					
		3	6:55	9:15	11:35	13:45	15:40	17:30					
		4	7:30	9:45	12:15	14:15	16:10						
12	Nongping	1	6:30	8:10	9:40	11:10	12:30	14:30	16:00	17:20			2,000
13	Dongdok	1	6:30	8:00	9:30	11:00	12:30	14:00	15:30	17:00	18:30		
		2	7:00	8:30	10:00	11:30	13:00	14:30	16:00	17:30	19:00		
		3	7:30	9:00	10:30	12:00	13:30	15:00	16:30	18:00	19:30		

The road name are following

1. Road No 1
2. Kounboulom Road-Anou Road-Donedeng Road-Houayhong Road and Dongdok Road
3. Anou Road-Phontong Road-150 Tieng Hospital-Phontong Road
4. Nongbone Road-Thadlouang Intersection-Kamphengmeuang Road-Dongkhaxang School
5. Nongbone Road-Patouxay-Kaysonephomvihan Road-Road No10
6. Nongbone Road-Thadlouang Intersection-B.Noixiengda-Dongkhamxang Scholl
7. Road No1-Nongteng Road
8. Nongbone Road-Dongdok-Sikeut Road
9. Nongbone Road-Dongpalan Road-Phonthan Road-Lao-Tai Road
10. Road No1-Thongpong Road
11. Road No1-Kaoleiw Road
12. Kkounboulom Road-Anou Road-Asien Road-B.Dongnasok-B.Nongping
13. Nongbone Road-Kaysonephomvihan Road-Sikeut-Dongdok Road

Time Schedule for Northern Bus Station

LAO PEOPLE DEMOCRATIC REPUBLIC
PEACE INDEPENDENCE DEMOCRACY UNIT PROSPERITY

VIENTIANE

Time Schedule for bus station at Road T2 (Northern)

No	Destination (Province)	Time Schedule									Price/Person
		1	2	3	4	5	6	7	8	9	
1	Louangphabang	6:30	7:30	8:00	9:00	11:00	13:00	16:00	18:00	19:00	90,000
2	Xiengkhouang	6:30	7:30	9:00	15:00						90,000
3	Oudomxay	6:45	13:45	16:00	17:00						110,000
4	Xamneua	7:00	9:30	12:30							150,000
5	Phongsaly	7:15									150,000
6	Xaysomboun	7:30									70,000
7	Louangnamtha	8:30									140,000
8	Bokeo	17:30									200,000
9	Xaynyabouly	16:30	18:30								1,000,000

Queue Arrangement of Tuk-tuk

The Queue Arrangement is to provide the designated station to each Tuk-tuk in the five zones in the urban districts, as shown in Table 1 and 6. There are 14 staffs responsible for the queue management and 220 staffs on duty at all queues for control. Since January 2005 the association has set up the regulation management team which consists of three officers and two traffic polices. The team coordinates and monitors Tuk-tuk operation at each queue (waiting station) and also provide warning and training for those against the regulations.

Table 1 Queue Arrangement in Vientiane Urban

Zone	Service Area	Queue	Member
Zone 1	Sisattanak-Hatsaifong	22 queues	791 members
Zone 2	Saysettha	13 queues	240 members
Zone 3	Chanthabouly	28 queues	343 members
Zone 4	Sikhottabong	16 queues	326 members
Zone 5	Saythany	7 queues	187 members
	Total	86 queues	1887 members

**Table 2 Statistic and Tuk-tuk & Jambo Station in Urban Districts of Vientiane
Year 2006-2007**

No.	Name of Station(Query)	Jambo	Tuk-tuk	Motor -Car	Total
	<u>Sisattanak District, Hadxaifong District</u>				
1	Faculty of Medical Science Station (in front of Food-Drug Research Institute)	157	123	1	281
2	In front of Khuadin Station	65	3		68
3	Khuadin Market 1	8	2		10
4	Khuadin Market 2	15	2		17
5	Khuadin Market 3	14	4		18
6	Khuadin - Lardkrai		11		11
7	Mahosod Hospital 1	10	15	2	27
8	Mahosod Hospital 2	11			11
9	Dongpalan Station	20	4		24
10	103 Hospital	12	6		18
11	Phonpapao 1	2	12		14
12	Phonpapao 2	5			5
13	Sethathirath Hospital	16	9		25
14	Sokpaluang	9			9
15	Thaphalansay	19	3		22
16	Donpamai		12		12
17	Suanmon Market	5			5
18	Friendship Bridge		130		130
19	Morning Market 1	15	2		17
20	Morning Market 2	11	5		16
21	Central Post Office	4	2		6
22	Morning Market - Naxaithong		41	4	45
II	<u>Xaysetha District</u>				
23	Victory Gate Station	8	1		9
24	Phonsay Station	14	1		15
25	Nongbone Station	4	14		18
26	Nongsangtor	6	2		8
27	Sisanvone	9			9
28	Thatluang	2	7		9
29	Thatluang 1	11	1		12
30	Thatluang 2	10	4		14

No.	Name of Station(Query)	Jambo	Tuk-tuk	Motor -Car	Total
31	Thatluang 5	23	30		53
32	Thatluang 6	33	5		38
33	Thatluang Sonteo Station	8	28		36
34	Phonphanao		5		5
35	Huakhua Station	2	12		14
III	<u>Chanthabuly District</u>				
36	Hadsady Station	15	4		19
37	Chaleunsay Hotel		6		6
38	Sibounheung 1	3	1		4
39	Sibounheung 2(Soksay Guesthouse)	5	1		6
40	Thatdam	2	5		7
41	National Stadium	4	6		10
42	Haisok	2	3		5
43	Xienngeun	6	1		7
44	Taipan Hotel	6	13		19
45	Phosay Hotel	3	3		6
46	Pangkham Road	3	11		14
47	Namphu	8	21		29
48	Manthatulad	4	7		11
49	Misay	4			4
50	China Market 1	20	2		22
51	China Market 2	12			12
52	Evening Market	10			10
53	Thongkhankham 1	25	1		26
54	Thongkhankham 2	12	6		18
55	Thongkhankham 3	10	4		14
56	Thongkhankham 4	20			20
57	Thongkhankham 5	8			8
58	Thongkhankham 6	22	2		24
59	Thongkhankham(Rear of BCEL Bank)	2	4		6
60	Huayhong	10			10
61	Phontong	10			10
62	Saysana Hotel	2	6		8
63	Horkang	8			8
IV	<u>Sikhottabong District</u>				
64	Sikhay Station	23	66	3	92
65	Khaoleu Port	2	46	2	50
66	3 Jun Nongteang		5	2	7
67	Chansavang		28	5	33
68	Thongpong(Eye Treatment Hospital)	1	8		9
69	3 Jun Nongbeuak		14	2	16
70	Sikhay Market 1	9	1		10
71	Sikhay Market 2	12			12
72	Novotel Hotel		6		6
73	Microtech	6	3		9
74	Northern Station(T2 Road)	2	10	1	13
75	Sikhay - Nasaythong	2	25		27
76	Nongduang Market	18	1		19
77	Mongkol Hotel	4	6		10
78	Sansouk Guesthouse	4			4
79	Sikerd		8	1	9
V	<u>Xaythany District</u>				
80	Southern Station	8	86	4	98
81	Dongdok 1	3	9		12
82	Dongdok 2		20		20
83	Tanmisay	10	5		15
84	Mittaphab Hospital	7	12	2	21
85	Km 5 Station	6	7		13
86	Km 6 Station	6	2		8
	Total:	887	971	29	1,887

Source: Vientiane, Date: 10/May/2007, President of Tuk-tuk, Jambo Association

Time Schedule for Northern Bus Station

**Report
Key Formal Stakeholder Interviews**

By: Virachith Douangchanh, Counterpart for SMP CUT Project

There are some key formals have been made interview related to urban transport master plan preparing as: Vientiane DCTPC, Division of Transport; Manager of the Southern and Northern Bus station. The topic was setup for asking their both opinions and work experience relate to urban public transport. The questionnaires were asked for

1. The problems facing in public bus management in inner city of Vientiane and VUDDA area.
2. How to manage the exchange gateway between Urban-Rural transportation
3. How to make a connection between three bus stations: Northern bus station, Southern bus station, and Morning Market (Khuadin Market) bus station.
4. How to implement and management public bus services at Friendship bridge
5. How many bus routes and how much each route fares.

The result was shown as following:

- **The problems facing in public bus management in inner city of Vientiane and VUDDA area**

From the Officer of Division of Vientiane Transport

1. The state bus company is doing in term of lump sum price for the drivers instead of ticketing as other countries. This problem is affected to their revenues collection, that mean the money does not go directly in full amount to company. The coaches are more than accept the passengers more than standard, it has increase up to 10% of the 25 seats per each coach. That mostly these coaches have implemented service in inner urban area. There are some 45 seats coaches arrange for Dongdok bus route.
2. The time arrangement is not accurate to the schedule, moreover the stopping at the bus stations are not paid attentions by drivers. The stopping at the bus station is untidy. This problem depend on the lump sum policy was given by boss of the state bus company.
3. In addition, state bus company still use some coach 45 seats for outer route service for some provinces and international routes as Vientiane province= Kasi, Vangvieng, Pakjeng Tulakhom; Bolikhamxay province= Nam Tonh, Paksan; Khammuan province= Thakkhek; Champasak province= Pakse, Khong district; Saravanh provice; Savannakhet province. International bus routs as Nongkhai, Udonthany and Khonken is coming soon.

4. Some problems have been occurred between DTD(Division of Transport Vientiane Office) and State Bus Company in cooperation and management.
5. Mostly problems occurred related to management and services.

From the Officer of Southern Bus Station, Vientiane

- Southern Bus Station was constructed and service in 2004.
- The main problem is the lack of passengers to use the service while the buses are over than passenger needing. During the festival, the buses are not sufficient for passengers. Some buses have to additional seats. There are main four bus companies as Chitpasong, Sansabai, Buses Association and State Bus Company including the southern provincial bus companies to use this station.
- Moreover, there are two private bus companies as Sudala, and Sisamone International Transport company including Vietnamese bus company to operate the service while the amount the passengers still low.
- Lack of encouragement to people to use the service at the station. Some concern to state bus service during city center to station is not on time because of untidy stopping at the bus station. Mostly passenger likes to travel at the night time. So, at the night time there are more passengers using this station approximately 900 passengers per day.

From the Officer of Northern Bus Station, Vientiane

- Northern Bus Station was constructed and service in 2002.
 - Normally the problem within the Station management is not has any problems. They use their own experience and technique to control and manage business.
 - The most problem occurred is related to cooperation, relationship between government as government is not stable regulate by changing the regulation without environmental studying.
 - They need to improve their business by Bus factory setting up with higher technology machines and technical staffs to arrange their own business. Moreover to find another international investors to join with them (by technology and machines)
- **How to manage the exchange gateway between Urban-Rural transportation**

From the Officer of Division of Vientiane Transport

1. The morning market bus station is a central connection between some outbound transportation mostly in the northern part of Vientiane as Lingsan village, Nam Houm village etc., and Vientiane province as Vangvieng, Kasi, Phonhong, Keooudom district and so on.

2. Some of the private bus and Sonteo companies take some bus routes to setup the services as Ban Keun (Thoulakhom district, Vientiane Province), Paksan district (Bolikhamsay province). The competition between State Bus Company and Private companies have been lose to private services.

From the Officer of Southern Bus Station, Vientiane

- This station mainly to serve for passenger who want to travel to southern part of Laos and some suburban areas around Vientiane. This is the gateway to connecting between urban and rural transport. It can reduce the congestion at the Morning market bus station and traffic problems around this area.

From the Officer of Northern Bus Station, Vientiane

- This station is the gateway for the provincial transport communication connecting to Vientiane. There are mainly four private bus companies within Vientiane come to use their service as Chithpasong bus company, Vientiane Bus transport Association, Sengsomboun bus company, Sensabai bus company, Soutchai bus company, Lao International transport, and Thonglipasi bus company.
- There are routes covered all the northern part of Laos as Vientiane province: Sanakham, Xaysomboun; Xaiyaboury province: Paklai; Luang Prabang province; Xiengkhaung province; Xamneu province; Oudomxay province; Luangnamtha province; Phongsaly province; and Bokeo province.
- Luang Prbang province route: there are 10 buses/day (VIP 1-2 buses), Normal Air bus= 3 buses, and Normal bus= 5 buses.
- Oudomxay province route: 4 buses/day, Normal Air bus= 2 buses, Normal bus=2 buses.
- Luangnamtha province route: leave everyday at 8:30 am , 1 bus/day
- Bokeo province route: Leave every Monday, Wednesday, and Friday with 1 bus/day
- Phongsaly province route: Leave every Three days per week by 1 bus/day
- Xamneu province route: leave everyday at 7:00am to 12:30pm, with 3 buses/day
- Xiengkhuang province route: leave everyday at 6:30am to 7:00pm with 5 buses/day.
- Another provincial routes is normally leave at the morning with 1 bus/day
- Station has made a contract between private bus companies relate to station using by refer to transport regulation of Vientiane transport division (DCTPC) and Department of Transport (MCTPC) with charge by 10% of the ticket selling.
- If the some case the ticket selling is lower than 500,000 kips mean that do not charge for 10% (exempt charging)
- Some special charge has given to Paklai route (Xaiyaboury province) by only 5%.

- **How to make a connection between three bus stations: Northern bus station, Southern bus station, and Morning Market (Khuadin Market) bus station.**

From the Officer of Division of Vientiane Transport

1. State Bus Company has a right to service both northern and southern and Friendship bus station, mean that state bus company can pick passenger at the north, south station and Friendship point while other bus, van, Tuk-tuk and Sonteo can not do as state bus company.
2. In the southern bus station have an agreement between state bus company in term of passenger services. At the day time, only state bus company can serve for passenger from 6:00am to 6:00pm while at the night time, Sonteo of Southern bus station can able to make a service for passengers to go in downtown and some where else.

From the Officer of Southern Bus Station, Vientiane

- Connect to the Northern and Morning market bus station by using Station's Sonteo mainly to serve for the passengers to get in the downtown.

From the Officer of Northern Bus Station, Vientiane

- Station has their own Sonteo for passenger service by connecting to Southern and Central bus station with reasonable price (3000-5000 kip to Morning station). Moreover, these Sonteos also serve for passenger go to the Friendship bridge after the time schedule of the Central bus station is closed.
- State bus company can pick up passenger at the Northern Bus Station in normal time table as Nongping route.
- Moreover, Northern bus station and Central bus station has regularly made a meeting in every 3 months to find better way to good service.

- **How to implement and management public bus services at Friendship bridge**

From the Officer of Division of Vientiane Transport

1. Only state bus company has a service for passenger transport through Friendship bridge while other private bus companies can not arrange for servicing.
2. State bus company also has a right to stop at the Friendship bridge station point to pick up passenger go in downtown and out downtown.

From the Officer of Southern Bus Station, Vientiane

- There is not any service to serve at the Friendship bridge

From the Officer of Northern Bus Station, Vientiane

- Normally there is not any service to serve at the Friendship bridge
- But when the time of the central bus station is closed, then passengers who travel from northern provinces want to go to Friendship bridge, station can arrange them by their Sonteo to go there.
- **How many bus routes and how much each route fares.**

From the Officer of Division of Vientiane Transport

- There are inner bus routes (within Vientiane Urban Area), outer bus routes (within suburban areas), provincial bus routes (Vientiane province, Bolikhamxay, Champasak, Saravanh, Savannakhet) and international bus routes (Thailand). Kindly to look at attached files.
- There are Tuk-tuk, Van, Sonteo, and Taxi Associations that do a transport business. There are 2900 Tuk-tuk have been registered plate number in the past two years (2005- 2006), at present only 1500 have been registered at the Division of Vientiane Transport.
- While routes of Sonteo have Paksan route: 28 cars/day, Ban Keuan (Thoulakhom district, Vientiane province) route: 150cars/day. In addition, **at Sikhay Market station** has Thalad (Keooudom District, Vientiane province) route: 150-180cars/day(with 7minutes leave per car); Vangvieng route: every 20 minutes per car approximately 50 cars/day; Kasi route: every 20 minutes per car approximately 50 cars/day.
- Total Taxi has been registered at the **Division of Vientiane Transport** about 114 cars in the year 2006, at the 2007 only 98 cars have been registered (some of the old car can not allow to use for taxi as Toyota type 5-6-7-8). There are three mainly Taxi Spots at Wattay International Airport, Morning Market and Friendship Bridge.
- There are 126 Vans have been registered as a Transport business mainly service at the Friendship bridge. Only 20 vans have been service at the Wattay International Airport, while there are not in Morning Market.

From the Officer of Southern Bus Station, Vientiane

- There are outer bus routes (suburban areas), provincial bus routes(mostly the southern provinces) and international bus routes (mainly Vietnam). Kindly to look at attached files.

- In this station, there are Sonteo and Tuk-tuk Associations that do a business as of the outer routes and provincial routes. Mostly Sonteo has 28 cars (Vientiane side=14, Paksan side=14)
- Average passenger using this station = 900 passengers/day

From the Officer of Northern Bus Station, Vientiane

- Mostly bus routes in this station serve for northern provinces
- Some time table and price have attached files.
- Chitpasong bus company (owner of the station), has 43 buses for service.
 - VIP 2 floors (VIP 1)= 10 buses
 - Normal VIP(VIP 2)= 10 buses
 - Normal bus= 23 buses
 - VIP 2 floors (VIP 1) have operated in southern route as Thakhek, Savannakhet and Pakse. And the northern route as Luang Prabang.
 - Normal VIP (VIP 2) buses have operated both southern routes and northern routes.
 - Normal buses have operated mainly in northern provinces.
- Chitpasong bus company still has one factory to buses manufacture.
- Average passenger using this station = 150 – 300 passengers/day

Key Formal Stakeholder Name:

Division of Vientiane Transport, DCTPC

1. Mr. Khamphai Souvatdy, Division of Vientiane Transport, DCTPC, Counterpart Team

Southern Bus Station

2. Mrs.Latdavanh Sisouk, Director of Southern Bus Station, Vientiane
3. Mr. Khamdene Thammavong, Chief of Bus Association, Southern Bus Station, Vientiane
4. Mr. Souksavath Sisouk, Chief of Account, Southern Bus Station, Vientiane

Northern Bus Station

5. Mrs.Chitpasong Longdethmixay, Director of Northern Bus Station and Chitpasong Bus Company, Northern Bus Station, Vientiane.
6. Mr. Thongphan Phommasith, Vice-Chief of Vientiane Bus Transport Association, Northern Bus Station, Vientiane.

Report
Key Formal Stakeholder Interviews

By: Virachith Douangchanh, Counterpart for SMPCUT Project

On the 28th May 2007, The Deputy Team Leader for SMPCUT Project, Mr. TODA with his counterpart have made meetings with Director of Urban Research Institute and Vientiane Sonteo Association to talk with the conceptual of the project and get some idea and information related to urban public transport planning and cooperation between urban transport and rural areas. The result of discussion was detailed as following.

Urban Research Institute, MCTPC

1. URI function not only for the urban research but also urban planning and urban design.
2. Land use zoning is not covered all districts in the Vientiane, it is covered only in the urban area.
3. Some lesson learnt from the Curitiba, Brassine in best practice in public transportation that the wider road in Curitiba but compare to the Vientiane while narrow roads are the interested public design and planning for expert planner. Moreover, how can bring the idea of the Curitiba to Vientiane with different in physical manner is the thing to keep in mind during the planning and make recommendation.
4. Some idea, will be focused in the peak hours in city service as three times per day as morning, lunch, and evening to be serve by BRT.
5. In some part of the lack of properly well done public transport service, private companies (textile factories, tools, ect., factories) located in the Thadeau road have to use their own buses to carry their own workers. If there are enough and good quality in public transport service workers will be used the public transport instead of.
6. There are three important location (core) to keep in mind as DonNoun station where can connect to rural areas, University, Morning market station, Friendship bridge station and some congestion traffic.
7. There are three types of the vehicles using: BRT, NRT and TDC that have to be carefully analysis wherever can appropriate use in differ location. Such as in the Ancient Urban Area (AUA) should be banded parking cars, motorcycles with allow for pedestrian walking (tourists). But in the real, it is too difficult in implementation.
8. Moreover encourage people to use the public transportation is the way to reduce increasing amount of vehicles with environmental protection.
9. The public transport service need to more improvement both in service and facility and management. Example waiting time to get in the bus during the peak hours should not be late one hours.

10. Public awareness campaign have to more pay attention to group of people, some of the students have to be given them in discount and encourage price for more reasonable to using. Ticketing campaign and promoting have to take care in account for management and controlling.
11. Kind of the vehicles or equipments to use in the transportation need to be carefully selection for more appropriate in support to urban transportation. Think about the electricity bus consumption, gas consumption make comparison between them to find another appropriate option to choose.
12. In term of TDC consideration to vehicles using in Vientiane as Pick Up using is more used space of the road, and need more space for parking and higher gasoline consumption. Hen, how can to make consider to encourage people to use another vehicle instead of them.

Vientiane Sonteo Association

1. There are 262 registered Sonteo in Vientiane in the year of 2007.
2. Mainly function of the association is to accumulate all independent Sonteo to come to be group for running the business.
3. To be a member of the association, owners have to submit their application form with fully important documents as ID card, Registered home No., Car ID, Technical Inspection ID, Insurance ID, Driving License ID. Then they will be followed by the member processing. Each member have to pay for status member association fee for 120,000 Kip per year.
4. Regulation of the association have to set up under the Transport Law and regulations related to.
5. There is not standardize fare for this case, they calculate the fare by refer to state public bus fare for baseline. It is very difficult to MCTPC to set up the standard fare for transportation because of the un-controlling the price consumption from ministry of the industry and trade. Moreover, the increased fuel price also is the problems for fix the fare.
6. Income generation from members is not profitable much as much. Mostly this is not permanent occupation, this is part time business arrange after they finished their farmers, trading ect.,
7. Estimate income generation from member is set up by the Tax Office registration, one example from one member their income planned about 44,700,000 kip per year, Tax payment in one year have to pay up to 2,700,000 Kip per year (230,000 kip per month), Some income=expenditure.
8. Sonteo routes: there are mainly four routes in different location as: Sikhay station to connect to Northern part, Dongdok station to connect to southern part, That Luang station to connect to some villages around suburban, while mini truck is seemed to be increasing in amount of registered plate no.

Road No. 13 North route

- a. Sikhay station to Vangvieng, every 20 minutes for one car run out, price is 25,000 kip
- b. Sikhay station to Xanakham, every 20 minutes for one car run out, price is 50,000 kip
- c. Sikhay station to Nonhay, every 20 minutes for one car run out, price is 30,000 kip
- d. Sikhay station to Meuang Feung, every 20 minutes for one car run out, price is 25,000 kip
- e. Sikhay station to Hin Herb, every 20 minutes for one car run out, price is 20,000 kip
- f. Sikhay station to Senxoum, every 20 minutes for one car run out, price is 10,000 kip
- g. Sikhay station to Thalath, every 10 minutes for one car run out, price is 10,000 kip
- h. Sikhay station to Village Km52, every 20 minutes for one car run out, price is 8,000 kip
- i. Sikhay station to Sangthong, every 20 minutes for one car run out, price is 15,000 kip
- j. Sikhay station to Xo, every 20 minutes for one car run out, price is 40,000 kip

Road No. 13 South, Dongdok Station Route

1. Dongdok station to Ban Keun, every 10 minutes for one car run out, price is 10,000 kip
2. Dongdok station to Tha Bok, every 20 minutes for one car run out, price is 15,000 kip
3. Dongdok station to Pak San, every 20 minutes for one car run out, price is 25,000 kip
4. Dongdok station to Meuang Hom, every 2 cars for One day run out, price is 50,000 kip
5. Dongdok station to Phalavek, every 2 cars for One day run out, price is 50,000 kip

That Luang Station Route

- a. That Luang station to Vilalges, 40 cars/day, price ranking from 6,000 to 8,000 kip (area around the suburban of Vientiane mainly)

Inner City Station (Mini Truck) Route

- a. Morning Market station to Tha Dindeng, every covered 9 seats for one car run out, price is 6,000 kip
- b. Morning Market station to Paksap, every covered 9 seats for one car run out, price is 6,000 kip
- c. Morning Market station to Dong Dok, every covered 9 seats for one car run out, price is 3,000 kip
- d. Morning Market station to Nong Teng, every covered 9 seats for one car run out, price is 3,000 kip

- e. Morning Market station to Nong Beuk, every covered 9 seats for one car run out, price is 3,000 kip
- f. Morning Market station to Kao Liew Port, every covered 9 seats for one car run out, price is 3,000 kip
- g. Morning Market station to Friendship Bridge, every covered 9 seats for one car run out, price is 3,000 kip
- h. Morning Market station to Mahosod Hospital, every covered 9 seats for one car run out, price is 3,000 kip
- k. Morning Market station to 150 Friendship Hospital, every covered 9 seats for one car run out, price is 3,000 kip
- l. Morning Market station to General Inner city, every covered 9 seats for one car run out, price is 3,000 kip

Key Formal Stakeholder Name:

Urban Research Institute, MCTPC

- 1. Mr. Keophilavanh Aphaylath, Director of URI, Steering Committee for SMPCUT project

Vientiane Sonteo Association

Mr. Souksomdee Senglangsy, Chief of Vientiane Sonteo Association

APPENDIX 9

PUBLIC TRANSPORT

9

Summary of Land Low

A9-1

Summary of Land Law

(1) Land Ownership

Land ownership of the Lao PDR is regulated by the Land Law (No. 04/NA, 21 October 2003).

Article 3 of the Law stipulates that “Land of the Lao PDR is under the ownership of the national community as prescribed in Article 17 of the Constitution in which the State is charged with the centralized and uniform management (of land) throughout the country and with the allocation (of land) to individuals, families and economic organizations for use, lease or concession, (the allocation) to army units, State organizations, political organizations, the Lao Front for National Construction, (and) mass organizations for use, (and the allocation) to aliens -----“.

(2) Protection of the Interests of the holder of Land Use Rights

The State Protects the legal interests of the holder of land use rights by allowing effective, peaceful, regular and long term use of land and by ensuring the (person’s) protection right, use right, usufruct right, transfer right and inheritance right (Article 5).

(3) Prohibition of Land Speculation

Illegal land occupation for the purpose of land speculation performed before or after the promulgation of the Constitution and this law is hereby cancelled.

It is prohibited to speculate on land; any individual or organization wishing to use land is required to have an authorization from the State (Article 7).

(4) Land Management and Registration

The land management organization in the Lao PDR consists of:

- National land management authority;
- Provincial (and) city land management authorities;
- District (and) municipal land management authorities;
- Village land units (Article 8).

The land management authorities have the following rights and duties:

1. To study and develop drafts of policies, laws, Presidential edicts, decrees, regulations, and rules and principles on land management;
2. To undertake land survey, land classification and land use planning at the local, regional and national levels;
3. To coordinate with concerned sectors and local administrations to plan the use of land, to protect (and) develop land, to classify land, to assess the quality of land, to define land

- areas for certain uses, and to monitor such land use;
4. To allocate land use rights, to lease or grant concessions, and to withdraw the right to use land;
 5. To develop land registers, make land evaluations, conduct land registration, issue land titles, and collect land statistics;
 6. To collect land tax;
 7. To settle land disputes;
 8. To manage State land and protect the environment;
 9. To define policies on the management of its organization and transactions for the sale and purchase of rights to use land;
 10. To develop a data and information system on land;
 11. To define policies and regulations to protect people who perform their professions on land such as; land surveyors or valuers, and brokers or representatives of land sellers or buyers;
 12. To exercise such other rights and performs such other duties as assigned by the government. (Article 10).

(5) Land Classification

Land in the whole country is divided into the following regions and categories:

1. Classification of regions: plain regions, plateau regions and mountainous regions consists of:
 - Urban regions;
 - Rural regions;
 - Specific economic regions;
 - Special economic regions.
2. Classification of land categories:
 - Agricultural land;
 - Forest land;
 - Water area land;
 - Industrial land;
 - Communication land;
 - Cultural land;
 - Land or national defense and security;
 - Construction land.

The government is charged with the zoning and demarcation of boundaries for each land category throughout the country and, thereafter, with their submission to the National Assembly for approval.

Local administrations are charged with the determination of land categories which are under their jurisdiction in accordance with the determination of boundaries for land categories made by the State and, thereafter, with their submission to the higher administrative authorities for consideration and approval.

The State authorizes Lao citizens to lease land from the State for a maximum period not exceeding thirty years; and this period may be extended depending on each case. In the case of the lease of land use rights in respect of developed land between Lao citizens, (such lease) shall be made on the basis of the agreement between two parties in a contract which must be certified by the village administration (and) notary office and must be registered at the district or municipal administration where the land is located.

The change of (the use of) land from one category to another category can be made only if it is considered to be necessary to use the land for another purpose without having negative impact on the natural and social environment and must have the prior approval of the concerned management authorities.

(6) Management of Agricultural Land

The Ministry of Agriculture and Forestry is charged with managing agricultural land, determining different categories of agricultural land, studying and developing regulations on the management, protection, development, and use of this category of land and, thereafter, submitting (them) to the government for consideration and approval.

(Determination of the Scope of Agricultural Land Use Rights)

- For those using land for cultivating rice and raising animals, the maximum area is one hectare per labor force in the family;
- For those using land for industrial plantation and growing crops, the maximum area is three hectares p labor force in the family;
- For those using land for fruit tree plantation, the maximum area is three hectares per labor force in the family;
- For those who use un stocked land or grassland and thereafter transform such land by planting crops or grass (suitable for grazing) livestock, the maximum area is fifteen hectares per labor force in the family.

(7) Management of Forest Land

The Ministry of Agriculture and Forestry is charged with managing forest land.

(Determination of the Scope of Forest Land Use Rights)

The State authorizes individuals and families to use, for the long term and in an effective manner, forest land which is un stocked land or degraded land inconformity with their

(respective) objectives in an area not exceeding three hectares per labor force in the family. Any person wishing to use forest land in a larger area has the right to apply to receive a lease or concession from the State.

The district or municipal administration, in coordination with the village administration, is charged with considering and approving the allocation of forest land use rights in respect of forest land which is under its management to individuals and organizations for use by issuing land certificates to them. These land certificates are valid for three years. During this period, if land has been used in conformity with objectives and regulations, and there is no objection or claim, or those claims have already been settled, then (the individuals and organizations) have the right to apply to the land management authorities at the provincial or city level for the issuance of land titles for long term use rights.

(8) Management of Water Area Land

Water area land is land which is submerged or surrounds bodies of water such as submerged land, land at river sources, river banks islands, newly-formed land, land formed when water recedes, or land formed by a change or diversion of waterways.

The Ministry of Agriculture and Forestry is charged with managing water area land

(Regulations on the Use of Water Area Land)

The use of water area land shall comply with the following conditions:

1. Not cause erosion;
2. Not cause obstruction to waterways;
3. Not cause water levels to recede or to flood;
4. Not pollute or poison bodies of water;
5. Not cut trees or destroy the forest in water catchment areas;
6. Not dig or take away soil from swamps and wetlands, (except) in the case of necessity with prior authorization from the concerned organization.

(Use of Water Area Land)

The village administration where the water area land is located is charged with studying and making proposals to the district or municipal administration concerning the allocation of such land to individuals or organizations for appropriate protection and use.

(9) Management of Industrial Land

Industrial land is the land area or region which is determined by the State to be the location of workshops (and) factories, including the housing places for workers, industrial centers, industrial zones, industrial estates, places for industrial, technical and scientific research,

waste-water treatment stations, industrial waste disposal sites, energy sources, electricity transmission lines, energy and gas pipe-lines, pipe-lines for water supply, mining areas, and other land used for industrial purposes.

The Ministry of Industry and Handicrafts is charged with managing industrial land.

In the case of the management of land used for electricity transmission lines, energy and gas pipelines, and pipelines for water supply, it is required to coordinate with the transport, post and construction sector and other concerned sectors.

(10) Management of Communication Land

Communication land is land which has been used or reserved for making roads, sidewalks (and) water channels, (for) road construction, bridge sites, telephone transmission lines, (and) telecommunications stations, as well as airports, harbors, station for goods and passenger transport, tunnels, railways, warehouses, and other land used for communication and transportation.

The Ministry of Communication, Transport, Post and Construction is charged with communication land.

(11) Management of Cultural Land

Cultural land is the location of the cultural heritage and is relate to the historical routes, traditional objects, archaeological sites, temples, natural landscape, cultural buildings, and other places which are determined by the State to be cultural and tourist land.

The Ministry of Information and Culture is charged with managing cultural land throughout the country. Individuals or organizations using cultural land shall comply with the regulations on the management, use and protection of cultural land.

(12) Management of Land for National Defense and Security

Land for national defense and security is land used for national defense and security work, such as: military camps; the locations of offices, army units, housing places, schools, military and police training fields, and artillery fields; military and police airports, harbors, warehouses, hospitals, workshops, factories, (and) recreational places; and other land which is used for national defense and security.

The Ministry of National Defense and the Ministry of Security are charged with managing land for national defense and security.

(Use of Land in Other Categories for National Defense and Security)

In the case of necessity, national defense and security forces can use other categories of land, whether they are owned by individuals or organizations, for national defense and security

activities, based on the decision of the government. After the land is no longer needed, it shall be returned to its former owner. If the use has caused damage to the possessor of the land use rights of developed land, compensation for such damage should be considered in an appropriate manner.

(13) Management of Construction Land

Construction land is land used for the construction of residential places buildings, workshops, factories, offices, premises of organizations, and public facilities.

The national land management authority is charged with managing construction land,

(Categories of Construction Land)

Construction land is divided into the following categories:

- Construction land for public facilities;
- Construction land for residential places;
- Construction land for workshops and factories;
- Construction land for offices and premises of organizations.

Construction land for public facilities is land used for collective benefit, such as public parks, schools, hospitals, markets, children's playgrounds, sports stadium, and other (facilities) which are for public use.

Construction land for residential places is land used for building places for individuals and families.

Construction land for workshops and factories is land used for industrial production and processing.

Construction land for offices and premises of organizations is land used for building offices of State agencies and organizations, enterprises, embassies, or international organizations.

APPENDIX 15

TRANSPORT DEMAND FORCAST

15-1	Zonal framework	A15-1
15-2	Trip Generation and Attraction by Purpose	A15-5

Zonal Framework

Table-1 Zonal framework in 2007

No.	Zone	Zone Name	Pop6	Primary	Secondary	Tertiary	Student
1	101	Chanthabouli 1	6,000	106	1,775	11,099	2,607
2	102	Chanthabouli 2	9,249	149	2,394	13,866	2,568
3	103	Chanthabouli 3	7,386	86	1,224	9,957	7,744
4	104	Chanthabouli 4	9,760	15	2,041	2,636	4,275
5	105	Chanthabouli 5	9,566	62	1,555	2,974	637
6	106	Chanthabouli 6	7,864	173	745	1,710	644
7	107	Chanthabouli 7	10,808	271	2,376	2,032	2,191
8	201	Sikhothabong1	7,011	54	1,686	7,359	5,573
9	202	Sikhothabong2	9,966	67	810	4,784	908
10	203	Sikhothabong3	8,373	49	1,038	2,378	878
11	204	Sikhothabong4	11,831	240	3,907	6,789	2,054
12	205	Sikhothabong5	6,061	638	231	1,947	938
13	206	Sikhothabong6	11,432	331	1,703	3,811	4,393
14	207	Sikhothabong7	12,528	350	1,020	4,381	2,251
15	208	Sikhothabong8	21,281	554	2,548	6,554	4,078
16	301	Saysettha1	15,632	583	3,243	15,095	5,072
17	302	Saysettha2	11,059	256	2,496	5,587	4,002
18	303	Saysettha3	4,637	102	747	3,567	1,319
19	304	Saysettha4	10,870	137	1,396	3,440	3,133
20	305	Saysettha5	18,221	1,348	2,525	3,564	3,738
21	306	Saysettha6	20,431	815	1,910	3,834	4,102
22	401	Sisatthanak1	6,137	43	1,042	5,699	2,719
23	402	Sisatthanak2	2,230	11	161	1,160	775
24	403	Sisatthanak3	3,484	49	1,324	8,331	1,351
25	404	Sisatthanak4	9,797	52	1,209	3,459	6,867
26	405	Sisatthanak5	9,350	93	1,289	2,807	954
27	406	Sisatthanak6	11,669	92	3,111	5,006	4,182
28	407	Sisatthanak7	10,674	71	1,885	4,047	3,918
29	408	Sisatthanak8	7,268	156	1,272	1,908	2,330
30	501	Hathsayfong1	11,276	1,364	714	1,876	745
31	502	Hathsayfong2	13,048	3,311	267	1,834	1,919
32	503	Hathsayfong3	18,183	1,049	4,929	5,267	3,697
33	504	Hathsayfong4	5,380	584	1,325	1,787	288
34	601	Xaythny1	17,950	486	2,186	5,214	3,848
35	602	Xaythny2	18,355	955	1,764	6,728	22,878
36	603	Xaythny3	5,216	191	311	889	310
Total			379,983	14,895	60,160	173,378	119,886

Table2 Zonal framework in 2013

No.	Zone	Zone Name	Pop6	Primary	Secondary	Tertiary	Student
1	101	Chanthabouli 1	5,740	90	1,988	15,552	2,331
2	102	Chanthabouli 2	8,667	127	2,602	18,712	2,268
3	103	Chanthabouli 3	7,200	73	1,412	14,372	7,181
4	104	Chanthabouli 4	9,902	13	2,499	2,683	3,917
5	105	Chanthabouli 5	12,206	53	2,599	4,124	680
6	106	Chanthabouli 6	10,370	147	1,311	2,587	716
7	107	Chanthabouli 7	15,025	231	4,926	3,301	1,976
8	201	Sikhothabong1	6,387	46	1,757	9,457	4,774
9	202	Sikhothabong2	10,213	57	1,005	5,323	856
10	203	Sikhothabong3	10,003	42	1,582	3,096	910
11	204	Sikhothabong4	13,124	204	5,195	7,668	2,171
12	205	Sikhothabong5	7,736	543	447	3,525	681
13	206	Sikhothabong6	18,030	282	3,119	5,934	7,834
14	207	Sikhothabong7	20,869	298	2,005	7,358	4,262
15	208	Sikhothabong8	31,628	471	5,286	11,428	4,900
16	301	Saysettha1	16,113	496	3,863	23,784	4,802
17	302	Saysettha2	11,691	217	3,078	6,122	3,846
18	303	Saysettha3	5,336	87	1,035	6,644	1,358
19	304	Saysettha4	14,665	117	2,304	4,949	3,841
20	305	Saysettha5	24,772	1,147	5,336	6,569	3,085
21	306	Saysettha6	27,494	693	3,819	6,846	3,624
22	401	Sisatthanak1	6,106	37	1,241	8,625	2,584
23	402	Sisatthanak2	2,314	10	203	1,883	761
24	403	Sisatthanak3	3,562	42	1,547	9,329	1,287
25	404	Sisatthanak4	10,781	44	1,652	4,130	7,008
26	405	Sisatthanak5	11,333	80	2,013	3,714	1,009
27	406	Sisatthanak6	13,124	78	4,388	5,923	4,184
28	407	Sisatthanak7	11,725	61	2,574	4,749	3,923
29	408	Sisatthanak8	11,010	132	2,673	3,241	3,144
30	501	Hathsayfong1	12,710	1,161	1,048	2,592	815
31	502	Hathsayfong2	13,379	2,818	377	2,728	1,790
32	503	Hathsayfong3	23,691	893	8,071	6,980	4,370
33	504	Hathsayfong4	6,585	497	2,089	2,309	321
34	601	Xaythny1	28,279	413	4,123	6,238	5,720
35	602	Xaythny2	27,389	813	3,389	11,497	31,358
36	603	Xaythny3	12,081	162	982	2,567	679
Total			481,240	12,676	93,539	246,540	93,539

Table-3 Zonal framework in 2018

No.	Zone	Zone Name	Pop6	Primary	Secondary	Tertiary	Student
1	101	Chanthabouli 1	5,511	78	2,232	20,055	2,101
2	102	Chanthabouli 2	8,158	110	2,861	23,713	2,019
3	103	Chanthabouli 3	7,036	64	1,615	18,777	6,711
4	104	Chanthabouli 4	10,019	11	2,965	2,875	3,618
5	105	Chanthabouli 5	14,522	46	3,556	5,292	716
6	106	Chanthabouli 6	12,567	128	1,827	3,451	776
7	107	Chanthabouli 7	18,722	200	7,216	4,525	1,797
8	201	Sikhothabong1	5,842	40	1,874	11,698	4,107
9	202	Sikhothabong2	10,421	50	1,201	6,060	813
10	203	Sikhothabong3	11,437	36	2,088	3,854	937
11	204	Sikhothabong4	14,238	177	6,442	8,824	2,268
12	205	Sikhothabong5	9,207	471	641	5,031	466
13	206	Sikhothabong6	23,808	245	4,403	8,005	10,702
14	207	Sikhothabong7	28,172	258	2,893	10,207	5,939
15	208	Sikhothabong8	40,694	409	7,743	16,053	5,585
16	301	Saysettha 1	16,522	430	4,508	32,222	4,577
17	302	Saysettha2	12,232	189	3,666	6,912	3,717
18	303	Saysettha3	5,940	75	1,309	9,529	1,391
19	304	Saysettha4	17,993	101	3,138	6,460	4,431
20	305	Saysettha5	30,516	995	7,857	9,430	2,542
21	306	Saysettha6	33,688	601	5,538	9,711	3,226
22	401	Sisatthanak1	6,076	32	1,448	11,494	2,470
23	402	Sisatthanak2	2,385	8	245	2,577	750
24	403	Sisatthanak3	3,628	36	1,784	10,662	1,233
25	404	Sisatthanak4	11,629	39	2,077	4,909	7,125
26	405	Sisatthanak5	13,075	69	2,684	4,664	1,055
27	406	Sisatthanak6	14,379	68	5,598	7,006	4,186
28	407	Sisatthanak7	12,631	53	3,234	5,589	3,927
29	408	Sisatthanak8	14,288	115	3,930	4,511	3,823
30	501	Hathsayfong1	13,947	1,007	1,361	3,372	873
31	502	Hathsayfong2	13,658	2,444	482	3,733	1,682
32	503	Hathsayfong3	28,523	774	10,959	8,805	4,931
33	504	Hathsayfong4	7,645	431	2,796	2,885	349
34	601	Xaythny1	37,325	359	5,875	7,433	7,280
35	602	Xaythny2	35,303	705	4,856	16,058	38,424
36	603	Xaythny3	18,086	141	1,574	4,084	986
Total			569,823	10,995	124,474	320,469	147,533

Table-4 Zonal framework in 2025

No.	Zone	Zone Name	Pop6	Primary	Secondary	Tertiary	Student
1	101	Chanthabouli 1	5,167	63	2,572	27,364	1,779
2	102	Chanthabouli 2	7,400	90	3,223	31,911	1,669
3	103	Chanthabouli 3	6,784	52	1,897	25,870	6,054
4	104	Chanthabouli 4	10,175	9	3,613	3,365	3,200
5	105	Chanthabouli 5	17,659	37	4,892	7,282	766
6	106	Chanthabouli 6	15,563	104	2,547	4,880	860
7	107	Chanthabouli 7	23,802	163	10,416	6,667	1,547
8	201	Sikhothabong1	5,037	33	2,036	15,440	3,175
9	202	Sikhothabong2	10,710	40	1,474	7,412	753
10	203	Sikhothabong3	13,336	30	2,795	5,160	975
11	204	Sikhothabong4	15,843	144	8,181	11,049	2,404
12	205	Sikhothabong5	11,199	383	913	7,405	166
13	206	Sikhothabong6	31,844	199	6,197	11,416	14,716
14	207	Sikhothabong7	38,360	210	4,133	14,763	8,285
15	208	Sikhothabong8	53,243	332	11,176	23,519	6,543
16	301	Saysettha1	17,094	350	5,407	45,685	4,261
17	302	Saysettha2	13,004	153	4,486	8,452	3,535
18	303	Saysettha3	6,812	61	1,692	14,053	1,436
19	304	Saysettha4	22,547	82	4,302	8,973	5,258
20	305	Saysettha5	38,384	809	11,378	14,130	1,781
21	306	Saysettha6	42,161	489	7,938	14,353	2,668
22	401	Sisatthanak1	6,023	26	1,736	16,093	2,312
23	402	Sisatthanak2	2,486	7	304	3,678	734
24	403	Sisatthanak3	3,718	29	2,114	13,081	1,157
25	404	Sisatthanak4	12,849	31	2,669	6,291	7,290
26	405	Sisatthanak5	15,396	56	3,620	6,292	1,120
27	406	Sisatthanak6	16,190	55	7,286	9,016	4,189
28	407	Sisatthanak7	13,934	43	4,155	7,124	3,933
29	408	Sisatthanak8	18,832	93	5,686	6,619	4,773
30	501	Hathsayfong 1	15,733	819	1,797	4,682	954
31	502	Hathsayfong2	14,044	1,987	627	5,378	1,530
32	503	Hathsayfong3	35,094	629	14,991	12,110	5,716
33	504	Hathsayfong4	9,062	350	3,783	3,918	387
34	601	Xaythny1	49,903	291	8,323	9,635	9,463
35	602	Xaythny2	46,263	573	6,905	23,355	48,318
36	603	Xaythny3	26,551	114	2,402	6,449	1,417
Total			692,202	8,937	167,665	442,871	165,125

Trip Generation and Attraction by Purpose

Table-5 Trip generation and attraction by purpose in 2007

Zone	Zone Name	Trip Generation in 2007				Trip Attraction in 2007			
		HOME	WORK	SCHOOL	OTHERS	HOME	WORK	SCHOOL	OTHERS
101	Chanthabouli 1	7,301	9,363	3,836	8,627	20,735	2,696	2,531	2,558
102	Chanthabouli 2	11,434	11,932	3,787	11,006	25,511	4,147	4,108	3,609
103	Chanthabouli 3	9,064	8,031	10,280	7,600	24,540	3,315	3,204	3,007
104	Chanthabouli 4	12,084	3,496	5,928	1,716	10,857	4,374	4,357	3,775
105	Chanthabouli 5	11,838	3,292	1,364	1,991	6,421	4,287	4,262	3,712
106	Chanthabouli 6	9,673	1,634	1,373	1,032	3,792	3,529	3,436	3,161
107	Chanthabouli 7	13,418	3,367	3,314	1,670	8,401	4,843	4,865	4,113
201	Sikhothabong1	8,587	6,581	7,557	5,526	18,763	3,147	3,021	2,885
202	Sikhothabong2	12,347	3,913	1,704	3,352	8,374	4,466	4,457	3,841
203	Sikhothabong3	10,319	2,385	1,667	1,420	5,170	3,755	3,683	3,326
204	Sikhothabong4	14,720	8,213	3,142	5,665	16,932	5,300	5,363	4,444
205	Sikhothabong5	7,378	1,332	1,742	1,867	4,692	2,723	2,560	2,578
206	Sikhothabong6	14,211	4,033	6,077	3,101	12,829	5,121	5,169	4,315
207	Sikhothabong7	15,606	3,816	3,390	3,493	10,219	5,611	5,702	4,670
208	Sikhothabong8	26,742	6,793	5,682	5,769	17,867	9,518	9,953	7,500
301	Saysettha1	19,555	13,602	6,928	12,782	32,184	6,996	7,209	5,674
302	Saysettha2	13,738	6,045	5,586	4,524	15,771	4,954	4,988	4,195
303	Saysettha3	5,566	2,978	2,220	2,417	7,121	2,087	1,868	2,118
304	Saysettha4	13,497	3,482	4,496	2,459	10,024	4,871	4,896	4,134
305	Saysettha5	22,850	4,611	5,254	4,584	14,658	8,152	8,467	6,511
306	Saysettha6	25,662	4,240	5,711	3,893	13,688	9,138	9,541	7,226
401	Sisatthanak1	7,476	4,788	3,976	4,082	12,112	2,757	2,597	2,603
402	Sisatthanak2	2,504	698	1,538	259	2,108	1,013	698	1,339
403	Sisatthanak3	4,100	6,950	2,261	6,249	14,592	1,573	1,308	1,745
404	Sisatthanak4	12,132	3,324	9,180	2,318	14,144	4,391	4,375	3,787
405	Sisatthanak5	11,563	2,927	1,762	1,867	6,280	4,191	4,158	3,642
406	Sisatthanak6	14,514	6,193	5,812	3,891	15,648	5,227	5,284	4,392
407	Sisatthanak7	13,248	4,371	5,481	2,915	12,341	4,783	4,801	4,070
408	Sisatthanak8	8,915	2,262	3,489	1,240	6,751	3,262	3,147	2,969
501	Hathsayfong1	14,014	1,726	1,500	2,997	6,347	5,051	5,094	4,265
502	Hathsayfong2	16,269	1,283	2,973	5,901	10,775	5,842	5,955	4,838
503	Hathsayfong3	22,802	8,055	5,204	5,830	19,578	8,134	8,449	6,499
504	Hathsayfong4	6,512	2,224	927	1,809	4,994	2,419	2,229	2,358
601	Xaythny1	22,506	5,491	5,392	4,535	15,086	8,031	8,336	6,423
602	Xaythny2	23,021	6,197	29,264	6,418	40,475	8,212	8,532	6,554
603	Xaythny3	6,304	640	954	338	1,693	2,346	2,150	2,305
	Total	471,470	170,268	170,751	145,143	471,473	170,262	170,753	145,141

Table-6 Trip generation and attraction by purpose in 2013

Zone	Zone Name	Trip Generation in 2013				Trip Attraction in 2013			
		HOME	WORK	SCHOOL	OTHERS	HOME	WORK	SCHOOL	OTHERS
101	Chanthabouli 1	26,506	2,999	2,020	2,712	7,067	12,448	3,401	11,605
102	Chanthabouli 2	31,780	4,518	3,215	3,749	10,844	15,221	3,323	14,132
103	Chanthabouli 3	28,956	3,757	2,616	3,229	8,951	11,088	9,328	10,609
104	Chanthabouli 4	10,538	5,160	3,719	4,187	12,437	3,966	5,339	1,824
105	Chanthabouli 5	9,486	6,356	4,660	5,004	15,409	5,063	1,383	2,980
106	Chanthabouli 6	5,773	5,403	3,910	4,353	13,041	2,789	1,426	1,752
107	Chanthabouli 7	13,050	7,819	5,810	6,003	19,047	6,663	2,966	2,900
201	Sikhothabong1	20,010	3,336	2,284	2,942	7,903	7,989	6,387	6,898
202	Sikhothabong2	9,218	5,321	3,846	4,297	12,838	4,408	1,597	3,672
203	Sikhothabong3	6,885	5,212	3,760	4,223	12,567	3,397	1,664	2,046
204	Sikhothabong4	19,722	6,832	5,034	5,329	16,594	9,955	3,205	6,215
205	Sikhothabong5	6,524	4,035	2,834	3,419	9,643	2,635	1,384	2,833
206	Sikhothabong6	20,349	9,378	7,037	7,068	22,923	6,808	10,126	4,708
207	Sikhothabong7	17,264	10,852	8,195	8,074	26,586	6,759	5,761	5,652
208	Sikhothabong8	28,332	16,436	12,587	11,887	40,467	12,658	6,540	9,409
301	Saysettha1	43,776	8,384	6,254	6,388	20,450	19,930	6,420	18,609
302	Saysettha2	16,415	6,088	4,449	4,821	14,745	6,901	5,252	4,764
303	Saysettha3	11,676	2,790	1,855	2,569	6,546	5,356	2,211	4,715
304	Saysettha4	13,558	7,631	5,663	5,875	18,582	5,362	5,246	3,644
305	Saysettha5	20,779	12,878	9,788	9,458	31,622	9,322	4,322	6,567
306	Saysettha6	18,959	14,291	10,900	10,422	35,133	8,097	4,981	6,005
401	Sisatthanak1	15,909	3,189	2,169	2,842	7,540	6,927	3,709	6,184
402	Sisatthanak2	3,120	1,221	622	1,498	2,648	1,264	1,482	895
403	Sisatthanak3	16,006	1,869	1,131	1,940	4,258	7,704	2,125	6,766
404	Sisatthanak4	14,620	5,616	4,078	4,499	13,572	4,182	9,117	2,842
405	Sisatthanak5	8,496	5,903	4,303	4,695	14,284	4,230	1,784	2,622
406	Sisatthanak6	18,018	6,832	5,034	5,329	16,594	7,986	5,666	4,624
407	Sisatthanak7	13,633	6,106	4,463	4,834	14,790	5,475	5,346	3,461
408	Sisatthanak8	10,963	5,735	4,171	4,579	13,867	4,517	4,394	2,419
501	Hathsayfong1	7,130	6,617	4,865	5,182	16,060	2,547	1,547	2,973
502	Hathsayfong2	10,027	6,964	5,138	5,419	16,924	2,015	2,739	5,032
503	Hathsayfong3	25,936	12,317	9,347	9,074	30,227	12,163	5,892	6,945
504	Hathsayfong4	6,580	3,438	2,365	3,011	8,158	3,323	944	2,083
601	Xaythny1	20,192	14,698	11,221	10,701	36,146	7,958	7,543	5,240
602	Xaythny2	53,235	14,236	10,857	10,385	34,999	10,934	38,879	9,619
603	Xaythny3	5,289	6,291	4,608	4,959	15,249	2,468	1,381	1,709
	Total	608,710	250,508	184,808	194,956	608,711	250,508	184,810	194,953

Table-7 Trip generation and attraction by purpose in 2018

Zone	Zone Name	Trip Generation in 2018				Trip Attraction in 2018			
		HOME	WORK	SCHOOL	OTHERS	HOME	WORK	SCHOOL	OTHERS
101	Chanthabouli 1	31,912	3,137	1,778	2,804	6,940	15,424	3,178	14,330
102	Chanthabouli 2	37,697	4,633	2,775	3,805	10,440	18,482	3,076	17,094
103	Chanthabouli 3	33,868	3,998	2,352	3,381	8,958	13,994	8,918	13,309
104	Chanthabouli 4	10,785	5,683	3,476	4,508	12,901	4,424	5,067	1,937
105	Chanthabouli 5	12,060	8,229	5,173	6,210	18,855	6,605	1,453	3,802
106	Chanthabouli 6	7,477	7,123	4,436	5,471	16,271	3,778	1,528	2,340
107	Chanthabouli 7	17,079	10,601	6,755	7,797	24,409	9,419	2,799	3,915
201	Sikhothabong1	21,941	3,323	1,903	2,929	7,378	9,422	5,676	8,200
202	Sikhothabong2	10,142	5,911	3,628	4,660	13,433	4,980	1,574	4,050
203	Sikhothabong3	8,385	6,484	4,011	5,044	14,776	4,290	1,728	2,557
204	Sikhothabong4	22,371	8,068	5,066	6,102	18,480	11,634	3,386	6,891
205	Sikhothabong5	8,311	5,224	3,170	4,201	11,828	3,771	1,142	3,729
206	Sikhothabong6	26,983	13,475	8,671	9,718	31,134	9,219	13,889	6,109
207	Sikhothabong7	23,366	15,942	10,315	11,367	36,904	9,338	7,957	7,515
208	Sikhothabong8	37,554	23,018	15,033	16,099	53,462	17,729	7,517	12,559
301	Saysettha1	54,470	9,358	5,926	6,966	21,500	25,761	6,261	23,837
302	Saysettha2	17,583	6,935	4,310	5,344	15,828	7,805	5,191	5,156
303	Saysettha3	15,628	3,379	1,940	2,966	7,508	7,434	2,294	6,600
304	Saysettha4	16,844	10,189	6,481	7,521	23,445	7,017	6,080	4,656
305	Saysettha5	26,565	17,266	11,198	12,252	40,003	13,335	3,728	8,480
306	Saysettha6	23,995	19,059	12,393	13,451	44,198	11,412	4,579	7,911
401	Sisatthanak1	19,488	3,455	1,991	3,018	7,688	8,895	3,638	7,987
402	Sisatthanak2	4,012	1,370	601	1,623	2,807	1,743	1,495	1,358
403	Sisatthanak3	17,580	2,072	1,068	2,093	4,451	8,636	2,097	7,435
404	Sisatthanak4	15,894	6,593	4,083	5,116	15,030	4,996	9,434	3,321
405	Sisatthanak5	10,434	7,411	4,627	5,663	16,942	5,383	1,875	3,260
406	Sisatthanak6	20,504	8,148	5,119	6,155	18,666	9,630	5,774	5,337
407	Sisatthanak7	15,211	7,160	4,460	5,494	16,355	6,513	5,452	3,983
408	Sisatthanak8	14,639	8,097	5,085	6,121	18,546	6,415	5,323	3,369
501	Hathsayfong1	8,204	7,903	4,956	5,992	18,096	3,300	1,649	3,257
502	Hathsayfong2	10,549	7,739	4,847	5,883	17,713	2,744	2,656	5,095
503	Hathsayfong3	31,760	16,140	10,447	11,500	37,368	15,737	6,702	8,179
504	Hathsayfong4	8,011	4,342	2,582	3,611	9,763	4,277	997	2,416
601	Xaythny1	24,934	21,114	13,764	14,826	49,007	10,172	9,627	6,025
602	Xaythny2	66,508	19,971	13,002	14,061	46,333	15,101	48,411	12,529
603	Xaythny3	8,238	10,243	6,516	7,556	23,568	3,977	1,790	2,779
	Total	740,982	322,793	203,938	241,308	740,984	322,792	203,941	241,307

Table-8 Trip generation and attraction by purpose in 2025

Zone	Zone Name	Trip Generation in 2025				Trip Attraction in 2025			
		HOME	WORK	SCHOOL	OTHERS	HOME	WORK	SCHOOL	OTHERS
101	Chanthabouli 1	40,626	3,284	1,525	2,916	6,800	20,340	2,844	18,482
102	Chanthabouli 2	47,390	4,693	2,303	3,835	9,896	23,958	2,704	21,686
103	Chanthabouli 3	41,847	4,304	2,088	3,581	9,042	18,738	8,294	17,371
104	Chanthabouli 4	11,497	6,443	3,270	4,978	13,743	5,255	4,656	2,234
105	Chanthabouli 5	16,013	11,165	5,877	8,060	24,118	9,015	1,552	5,089
106	Chanthabouli 6	10,072	9,843	5,147	7,197	21,213	5,312	1,672	3,237
107	Chanthabouli 7	23,091	15,041	8,018	10,591	32,635	13,552	2,548	5,499
201	Sikhothabong1	25,476	3,203	1,479	2,861	6,620	11,902	4,624	10,274
202	Sikhothabong2	11,870	6,782	3,456	5,199	14,485	6,041	1,535	4,754
203	Sikhothabong3	10,755	8,437	4,371	6,280	18,126	5,720	1,818	3,376
204	Sikhothabong4	26,851	10,020	5,244	7,313	21,601	14,475	3,640	8,179
205	Sikhothabong5	11,104	7,090	3,627	5,400	15,163	5,533	786	5,059
206	Sikhothabong6	36,614	20,114	10,820	13,904	43,784	12,943	19,340	8,242
207	Sikhothabong7	32,342	24,225	13,090	16,587	52,817	13,328	11,139	10,272
208	Sikhothabong8	51,314	33,615	18,275	22,718	73,451	25,480	8,919	17,240
301	Saysettha1	71,191	10,809	5,680	7,829	23,335	35,107	6,009	31,612
302	Saysettha2	19,850	8,229	4,255	6,143	17,666	9,432	5,083	5,962
303	Saysettha3	21,599	4,322	2,098	3,593	9,081	10,668	2,406	9,320
304	Saysettha4	21,838	14,249	7,580	10,074	30,895	9,615	7,280	6,214
305	Saysettha5	35,345	24,241	13,098	16,597	52,851	19,395	2,846	11,410
306	Saysettha6	31,672	26,623	14,414	18,153	58,088	16,462	3,977	10,778
401	Sisatthanak1	25,131	3,825	1,823	3,267	7,987	12,069	3,523	10,674
402	Sisatthanak2	5,394	1,593	590	1,811	3,084	2,501	1,511	2,033
403	Sisatthanak3	20,535	2,370	1,020	2,318	4,791	10,397	2,050	8,676
404	Sisatthanak4	18,091	8,131	4,201	6,079	17,451	6,363	9,871	4,131
405	Sisatthanak5	13,466	9,738	5,089	7,128	20,981	7,215	2,003	4,278
406	Sisatthanak6	24,600	10,239	5,365	7,455	22,083	12,317	5,917	6,586
407	Sisatthanak7	17,894	8,816	4,580	6,527	18,954	8,249	5,590	4,896
408	Sisatthanak8	20,028	11,906	6,286	8,543	25,746	9,283	6,661	4,799
501	Hathsayfong1	10,015	9,951	5,206	7,268	21,449	4,507	1,791	3,802
502	Hathsayfong2	11,738	8,885	4,617	6,571	19,107	3,924	2,526	5,425
503	Hathsayfong3	40,701	22,165	11,952	15,242	48,290	21,282	7,864	10,288
504	Hathsayfong4	10,274	5,742	2,882	4,520	12,201	5,776	1,069	3,010
601	Xaythny1	32,085	31,509	17,112	21,342	68,820	13,658	12,642	7,398
602	Xaythny2	85,761	29,212	15,844	19,842	63,774	21,546	62,188	16,863
603	Xaythny3	12,507	16,776	8,976	11,723	36,446	6,229	2,382	4,297
	Total	946,577	437,590	231,258	313,445	946,577	437,590	231,258	313,445